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# THE JERSEY CITY DEVELOPMENT PLAN



Prepared by Direction of  
The Board of City Commissioners of Jersey City  
1920







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# JERSEY CITY DEVELOPMENT PLAN

## BOARD OF ENGINEERS

AUTHORIZED BY RESOLUTION, MARCH 30, 1920

### PRESENTATION OF THE REPORT TO THE CITY COMMISSION

November 23, 1920.

*To the Mayor and Honorable Board of City Commissioners:*

I came here today in behalf of the Jersey City Development Plan Board of Engineers, created by your body on March 30th last, to submit for them their report on the industrial and transportation development of Jersey City. At the time your Board was created, it was anticipated that the New York-New Jersey Port and Harbor Development Commission would present to the people of this State a plan for the comprehensive development of the Port of New York, of which Jersey City is an integral part.

Since any plan of this character must so vitally affect the development of this community, the thought in the minds of your Board, and we believe in the minds of the people of our City, as well as the members of your Commission, is that the interests of Jersey City should be protected. Accordingly, your Board has prepared a City Plan which we hope will serve as a guide to the Commission in taking a proper position in this matter. With this thought in mind your Board has included as a part of its report a recommendation that its activities be continued in cooperation with a lay commission representing the business men of the City, and that the combined judgment of this body be the determining factor in fixing Jersey City's attitude towards the general port, or any other, development plan. Your Board began its work with the broadest possible viewpoint—the entire development of the New Jersey territory. We believe that our position was a most unique one. In the first instance, the instructions given to the Board by your Commission were most liberal. We were made to feel that we were approaching our task absolutely untrammelled, that there were no axes to be ground, and no particular pet project to exploit. We were to be at liberty to take our subjects as we found them and to follow our problems from an engineering standpoint irrespective of their political significance. Our only instructions were to give our best interests to those they would most benefit, the people of our City, our County, and our State. Your Board feels that it has made a sincere and conscientious effort to live up to these instructions to the letter.

To briefly rehearse the history of the Board, let me say we were created on March 30th last, by your Honorable Body, acting on the suggestion of the Chamber of Commerce of Jersey City, and the Board has appointed two members of the Chamber of Commerce: Mr. A. F. DeCastro and the speaker. Two of the engineers selected were from Hudson County's official staff: Mr. Thomas J. Wasser, then the County Engineer, now the State Highway Engineer, and Mr. Joseph McLean, Engineer to the County Tax Board. Then there were three engineers appointed from your Commission's official staff: Mr. Charles A. Van Keuren, Chief Engineer of the Department of Streets and Public Improvements; Mr. Hugh A. Kelly, Engineer of the Department of Parks and Public Property, and Mr. Fred Dunham, the Harbor Engineer. Your Board was afterward reinforced by the appointment of the Engineer-Secretary, Mr. Philip Guise, M. A., S. C. E., and also Mr. Willard G. Stanton, the Secretary of the Chamber of Commerce, who was placed in charge of publicity.

Although only \$10,000 was appropriated for the report, that sum does not represent the value or actual cost of it, because your Board did not only gladly donate their services, but also unsparingly gave the services of the extensive personnel of the expert and technical organizations with which they are associated, not saying anything about the professional services given through the genuine cooperation of outside interests. Indeed, it is a question if it would be practical to go out and buy the talent that was brought in on this work at any price. Besides, the time, scarcely seven months, to get the organization together, would not have been sufficient.

Your Board wants to point out to the Commission that they have really more than a professional or business interest in this work, presenting as it does the opportunity for a tremendous industrial improvement in Jersey City. In addition, the Board has a great deal of sentiment, because their homes were in Jersey City before the report was made and they expect to still reside here, and keenly feel the responsibility of the wisdom and integrity of all the plans to a detail, along with the recommendations.

Your Board met every Monday and Thursday of each week in the City Hall in Jersey City, and headquarters were carefully provided by the Commission for them. Here the Board first adopted definite rules of procedure and laid out a work program, all of which had been carefully considered and included in your report, in most cases, with definite recommendations and estimates of cost.

Permit me to briefly summarize the report:

First, there is a City Development Plan for through streets and highways, parks and playgrounds, looking to a "Jersey City Beautiful" as well as a "Jersey City Progressive and Efficient."

Then comes the proposed Tunnel Routes through the City connecting up the proposed tunnel under the Hudson River with the Board's already well-known scheme for a new Rotary Highway. Practical improvements are recommended in connection with the local transportation problem. That includes a continuous north and south trolley line. There is a plan for a belt line railroad encircling Jersey City that should prove of the greatest benefit to industries here,







Jersey City, N. J.,  
November 1, 1920.

To the Mayor and Honorable Board of City Commissioners,  
Jersey City, N. J.:

Gentlemen:—

In keeping with the instructions of your honorable body, the Board of Engineers created by resolution passed March 30, 1920, hereby submit to you their report and plan for a comprehensive development of Jersey City's industrial, rail and water transportation facilities.

At the time your Board of Engineers was created, the uppermost thought in the minds of both the business men of your City and the Chamber of Commerce, who petitioned your honorable body to create such an engineering board, as well as in the minds of the Board themselves, was the immediate necessity for providing a comprehensive plan for the expansion of Jersey City's water and rail transportation facilities.

The necessity for this plan was, in a large measure, emphasized by the activities of the New York-New Jersey Port and Harbor Development Commission, who at the time your Board of Engineers was created had before the Legislature of the State a bill creating a port authority vested with sufficient power to carry out a comprehensive development within the Port of New York that would include within its scope both Jersey City and New York. The possibility that the plan of this Bi-State Commission might not be entirely favorable to the business interests of Jersey City, and that without a local plan as a base to check against the general port plan the City authorities would be unable to intelligently analyze its effects upon Jersey City's local developments, forced your Board to give immediate attention to those particular phases of city development which come under the scope of rail and water transportation facilities.

It early became apparent to your Board in their studies of these features of the City's development that there was also a very immediate and pressing need for a comprehensive city plan, that would provide better interior street articulation, a more satisfactory means of disposing of garbage and ashes, sewerage facilities, parks and playgrounds, street lighting, passenger transportation and zoning. It was likewise apparent that within the limited space of time given by your Commission to this Board to work, some seven months, it would not be possible to give all of these subjects the detail and study that they deserve, and it consequently became the first task of your Board to select out of a multitude of subjects needing attention those things which they considered of paramount importance and forming, in fact, the skeleton upon which any interior development must of necessity be built.

The Board consequently gave its attention first to those features which would be most naturally included as a part of the report of the New York and New Jersey Bi-State Commission, and the features of interior planning which have been included in this report, such as the Proposed Rotary Highway, the Motor Truck Speedway and supplemental tunnel routes, should really be considered more as related features of the general waterfront development of the City than as any separate interior planning in themselves.

### **Synopsis of the Report**

Your Board as its first task set itself to preparing in chart form the plan and scope for an investigation which, if carried to its fullest extent, should provide the foundation for a complete Jersey City development plan. This original chart showing the plan and scope of an investigation essential to a city plan has been included in and made a part of this report. When this comprehensive city plan is prepared provision should be made for the future amplification and correction of the existing street system, the amplification of the existing sewerage systems, a more comprehensive study of the existing zoning regulations with the idea of providing modifications or changes to conform with the new industrial developments proposed, a comprehensive study of the service furnished by various public utility corporations with the possible idea of suggesting better lighting systems throughout the City, the elimination possibly of overhead wires, a discussion of the advisability of a municipally owned lighting plant and other kindred features. More time and study should also undoubtedly be given to the City's water supply, particularly in regard to its potability and its protection against the rapidly increasing pollution in the Rockaway watershed. In connection with a comprehensive street plan, study should also be given to the matter of adequate paving, bearing in mind the increased use of auto trucks, the designation of certain routes for heavy trucking and others for light pleasure car traffic. Some of these subjects have been touched upon within the scope of this report, but owing to lack of time and the necessity for the detailed treatment of more immediate necessary developments, none of them have been gone into the detail they require.



Your Board is calling these various features of a full comprehensive city street plan to the attention of the Commission at this time in the hope that your honorable body will see the wisdom and necessity for continuing either the work of this Board or some similar body, that may succeed it, up to the point that there may be prepared for Jersey City a complete city plan for amplification of its street system, drainage, lighting and allied features. As an appendix to this report your Board has suggested a method by which its work might be continued, and in lieu of any better suggestion we recommend the thought contained in this report for your careful consideration.

Your Board, however, does feel that within the scope of the report which we are submitting to you, in keeping with our instructions, there is contained sufficient information to permit your honorable body to amply safeguard the interests of Jersey City so far as they are inter-related with the New York and New Jersey Bi-State Commission, and that we have laid down a foundation which, if carried out, will make it possible for Jersey City to realize to the fullest possible extent on its wonderful natural advantageous location as the terminus of nine of the great trunk line railroads of the east and on its eleven miles of shore front on Newark Bay, the Hackensack River, New York Bay and the Hudson River.

In its report your Board has endeavored to suggest those things which they feel require the most immediate attention. The beginning of construction work upon the Vehicular Tunnel and the general approval of the project by a vote on the part of the people of New Jersey at the recent election makes most imperative for Jersey City the development of internal traffic routes to take care of the tremendous increase in business which is bound to follow the opening of the tunnel. Second to the opening of the tunnel the most important development to come to Jersey City will be the abandonment of the Morris Canal by the Morris Canal and Banking Company in 1924, when under provision of the company's charter the State of New Jersey has the privilege of buying back the canal right of way.

Your Board feels that the citizens of Jersey City should bend every possible effort to see that the State of New Jersey takes advantage of this opportunity to regain the right of way over the canal and that the City of Jersey City subsequently acquires from the State that portion of the canal, including the basin property, which lies within the boundaries of Jersey City.

Your Board has gone into considerable detail in the course of this report to outline proposed traffic routes leading down to the mouth of the Vehicular Tunnel, and have devoted a great deal of attention to outlining a plan for the disposal of the canal property within Jersey City along lines that they feel will bring the greatest possible return to the community.

The report also covers in detail plans for the development of the west waterfront of your City, a scheme for removing from the Hudson River and New York Bay shore line a large share of the railroad terminals which now hold this valuable property in their iron grip, a belt line railway that would provide interior articulation between the trunk line roads terminating in Jersey City, a plan for the municipal removal of garbage refuse that will in itself bring about a great financial saving to the City as well as to the industrial interests located therein, and numerous other recommendations for local rail and waterfront developments, including the Fairmount Terminal, Morris Canal Basin, South Cove and other projects more local in their treatment.

Owing to the very apparent shortage of houses in our City and the necessity for providing some immediate relief in this respect, your Board has also devoted a great deal of its time and thought to a study of the housing situation, and you will find included in this report a comprehensive plan which, based on experience gained from other communities, is workable from a financial standpoint, practical from an engineering standpoint and capable of producing at a minimum cost homes for a maximum number of the residents of your City. We especially call your attention to this plan in view of the fact that the Legislature of New Jersey has declined to authorize the construction of homes by municipalities, and respectfully suggest that your honorable board endeavor to provide for this lack of housing facilities by interesting private capital along the lines suggested.

In studying the housing condition in the City it became apparent to your Board that there was a regrettable lack of transportation facilities, particularly between the northern and southern limits of the City, due to its group development as a series of small communities which later federated into a large city. Communication lines in this City in particular and Hudson County in general have been built up primarily with the idea of providing easy access to and from New York. To travel north and south within the city limits requires many transfers and the expenditure of much patience. As a result of this condition a great deal of territory available for residential development has been permitted to lie idle, and your Board feels that the housing situation would be in a measure relieved by more adequate transportation facilities. They have consequently studied in some detail the possibilities of north and south transportation in the City. They have looked particularly into the growing congestion about the Summit Avenue tube station, and have submitted



details for the possible construction of a new Boulevard bridge over the Pennsylvania tracks. Serious thought has been given also to the possibility of a north and south subway running underneath the Boulevard, and other transportation facilities within the limits of the City.

We feel that laid down within the limits of this report is the skeleton on which can be built a greater Jersey City that will rival in importance the communities that have grown up across the East River. The Queensborough Bridge in five years' time tripled the size of Long Island City, industrially speaking, and Long Island City, aside from its permanent connection by virtue of a bridge to the City of New York, has practically nothing to recommend it, being dependent on a single railway system for railroad transportation. This enormous growth has taken place in the single span of five years for that community, and your Board leaves it to the imagination of your Commission and the imagination of the citizens to determine the future of Jersey City, which houses the terminus of nine trunk line railroads and which on the completion of the Hudson Tunnel will have an even shorter transportation connection to the great City of New York than Long Island City or Brooklyn.

We trust that your honorable body will find ways and means to make the report of your Board of Engineers of practical value to the City; our work in this capacity has been a pleasure and we have gladly donated our time in the interests of our home community. The Board hopes that the Commission will consider itself at liberty to call upon it at any time. If its services are desired it will be very glad to continue in office to work out the salient features of any or all of the plans herein outlined for the development of Jersey City.

Respectfully submitted,

*Philip Guise*  
SECRETARY

*Martin Schreiber*  
CHAIRMAN

*Albert J. de Castro*

*Joseph A. Loran*

*Frederick D. Dunsen*

*E. H. Haukeness*

*Hugh A. Kelly*

*J. Brasser*



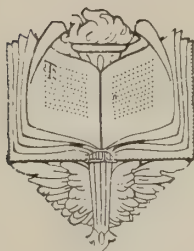


BOARD OF COMMISSIONERS  
JERSEY CITY



*REPORT OF THE BOARD OF ENGINEERS*

# Jersey City Development Plan



November 1, 1920



# **The Jersey City Development Plan**

## **Introductory**

The necessity for a preconceived plan of development anticipating and providing for future growth and expansion of their cities has early been recognized by European and other countries. American cities, on the other hand, have only recently come to a realization that a rational plan of development is necessary for the healthy growth and welfare of the community. As a rule accommodations and facilities have been provided as they became necessary and then sufficient in extent only to serve the immediate need and no more. New York City has been no exception to this rule. The city has grown haphazard, providing for the moment only, with little thought of the future. The result of this irrational growth is a condition of congestion in the harbor so great that immediate relief is necessary by reorganization and expansion of the facilities for shipping, commerce and manufactures.

## **Jersey City's Opportunity**

Such reorganization and expansion is only possible by development of the New Jersey shore and its hinterland. That this is realized by the great steamship and transportation interests is evidenced by the projected great terminal developments on the New Jersey side of the Hudson River and New York Bay as planned by the Cunard Line, the Luckenbach S. S. Co., the Lehigh Valley Terminal project, the Vehicular Tunnel about to be constructed under the Hudson River, and the Staten Island Terminal of the City of New York. Warehouses and terminals are planned in lower Jersey City by the Erie, Lackawanna and Pennsylvania Railroads. The construction of a bridge across the Hudson River is seriously under consideration and plans for great railroad expansion in the Passaic and Hackensack meadows are maturing.

The reorganization of the port, urgently and imperatively necessary, presents the great opportunity for the City of Jersey City to come into its own, to take its place as a dominant factor in the port, subservient to no other part; the opportunity to develop Jersey City into the great maritime, commercial and industrial city for which its magnificent location on the most important part of New York Bay and the lower Hudson River intended it.

## **Preparation of a Comprehensive Development Plan.**

Recognition by the municipal government of the great opportunity presented by this necessary reorganization of the entire harbor, the opportunity to place Jersey City upon that eminence among the great cities of the country where by right of its geographical location it belongs, resulted in definite action by the City Commissioners, who determined upon the preparation of a comprehensive plan for the development of its waterfront and the expansion of its rail and water transportation facilities.

Conferences between the City Commission, the Chamber of Commerce and the leading business men of the City to determine ways and means to accomplish this resulted in the creation of a Board of Engineers to prepare a Jersey City Development Plan, by resolution passed March 30, 1920.

## **Resolution, March 30, 1920**

By Commissioner Gannon:

Resolved, That there be created by the Mayor and the Board of City Commissioners of Jersey City, a Board of Engineers whose task it shall be to prepare a comprehensive development plan for Jersey City, and who shall be instructed to make their completed report to your Commission on or before November 1, 1920, and be it further

Resolved, That this Board of Engineers shall have authority to hire a secretary to their Board, such additional clerical assistance as they need, and from time to time have the privilege of securing advice of consulting engineers of established reputation as such advice may be found necessary, and be it further

Resolved, That the Director of the Department of Revenue and Finance be and he is hereby authorized and directed to have prepared and submit to the Board of Commissioners an ordinance appropriating the sum of ten thousand dollars (\$10,000) for the purpose of financing the carrying out of the above described plan.

Adopted.

Yeas: Commissioners Gannon, Moore, O'Brien and Mayor Hague.

Nays: None.

On motion of Commissioner O'Brien the Board adjourned.

Approved.

FRANK A. DOLAN,  
City Clerk.

JAMES F. GANNON, JR.,  
A. HARRY MOORE,  
CHARLES F. X. O'BRIEN,  
FRANK HAGUE,  
Commissioners.



## Members of the Board of Engineers, Jersey City Development Plan



JOSEPH P. McLEAN  
Engineer, Hudson Co. Tax Board



THOMAS J. WASSER  
State Highway Engineer



FREDERICK DUNHAM  
Harbor Engineer



CHARLES A. VAN KEUREN  
Chief Engineer of Public Works



MARTIN SCHREIBER, Chairman  
Engineer, Waterfront Committee,  
Chamber of Commerce



HUGH A. KELLY  
Engineer of Parks and Public  
Property



ALBERT F. DE CASTRO  
Engineer, Jersey City Chamber of  
Commerce



PHILIP GUISE, M. A. S. C. E.  
Secretary



WILLARD A. STANTON  
Manager, Jersey City Chamber of  
Commerce



In accordance with this resolution the Board of Engineers was organized with the following personnel:

Martin Schreiber, Chairman, Engineer West Waterfront Committee, Chamber of Commerce.  
Albert F. DeCastro, Engineer to Chamber of Commerce.  
Frederick Dunham, Harbor Engineer, Jersey City.  
Hugh A. Kelly, Engineer, Department of Parks and Public Buildings, Jersey City.  
Joseph P. McLean, Engineer, Hudson County Tax Board.  
C. A. Van Keuren, Chief Engineer, Department of Streets and Public Improvements, Jersey City.  
Thomas J. Wasser, Hudson County Engineer; since State Highway Engineer.  
Philip Guise, M. A. S. C. E., Secretary. Mr. Guise to be in general charge of and to direct the engineering forces and other organization necessary for the work to be undertaken by the Board.

A constitution and by-laws were adopted for regulation of the business of the Board. It was decided to hold weekly meetings for discussion of the work to be done. The Board adopted the official designation, Jersey City Development Plan, Board of Engineers, this seeming to be descriptive of its functions.

### **Scope of the Development Plan**

The first work of the Board of Engineers was the preparation of a tentative outline of the work to be accomplished.

Many suggestions of past years for public improvements were examined and much study was given to reports and recommendations by former commissions, bodies and individuals, prepared by legislative, municipal or other authority. These reports and recommendations accumulated much information of value to the Board of Engineers, and this data was given due consideration in preparing the plan of scope. Many schemes, suggestions and recommendations were found impracticable or based upon future conditions, difficult of realization. These were at once eliminated. The Board of Engineers resolved that its work should be practical and progressive and that it would make immediate recommendations to proceed with such work at once as the Board's investigations would show to be necessary and urgent, not delaying such recommendations until the presentation of the final report.

One of the factors in this determination was the existence of a number of reports prepared from time to time at great expense to the City which, while each presented facts of value, were mostly criticisms of existing conditions, presenting few practical recommendations for actual effective remedies, most suggested plans being based upon hypothetical assumptions impossible of practical realization within a reasonable period of time or within the financial ability of the City.

The Board of Engineers decided to offer practical suggestions from time to time as their work progressed and make definite recommendations which their familiarity with existing conditions in Jersey City, and in the harbor, showed to be necessary, and to urge immediate prosecution of such work, making its criticisms constructive, suggesting the remedy in plain language, accompanied by plans pointing out the advantages of the work to be done as a business proposition.

The Board, therefore, prepared a tentative plan of the work to be accomplished and the distribution among the members of the Board of the details of the various problems to be considered and worked out.

The Board for this purpose divided itself into committees, to each of which was assigned one or more subjects.

While the original intended scope of the work was the development of the waterfront and transportation facilities, it became at once evident that among the most necessary features of the rehabilitation of the City was the reconstruction of its interior street system, passenger transportation, light, power, sewerage and allied features. These problems were therefore included in the plan of scope with the purpose of investigating these subjects as far as possible within the time limit available.

### **The Primary Problems**

A rational plan for the development of Jersey City presents many co-related problems each of which must necessarily be worked out in harmony with the whole.

"Community life is not an aggregation of unrelated parts and functions, an agglomeration; but a growth, a product, whose many elements are virtually interwoven and inter-dependent."

Many cities whose lack of interest or haphazard development had resulted in stunting of growth and waste of opportunity have confessed their error in working aimlessly and without plan, have bravely faced the



*JERSEY CITY DEVELOPMENT PLAN*  
*BOARD OF ENGINEERS*  
*TENTATIVE SCOPE OF INVESTIGATION AND REPORT.*

*November, 1920*

<i>SUBJECTS</i>		<i>PROBLEMS INVOLVED</i>						
<i>Marine Terminals &amp; Waterways</i>		<i>West Waterfront</i>	<i>Disposition of the Morris Canal</i>	<i>Newark Bay &amp; Hackensack Rv Channels</i>	<i>Newark Bay Bridges</i>	<i>South Cove</i>	<i>Hudson River Waterfront</i>	<i>Connecting Bays by Ship Canal</i>
<i>Steam Railroads</i>	<i>Removal of Railroads from Hudson River Shore</i>	<i>Connecting Belt Line Railroad</i>	<i>South Cove and Fairmount Terminal</i>	<i>Railroad Facilities Electrification</i>	<i>Freight Interchange between Major Elect. &amp; Steam RR</i>	<i>Additional Railroad Sidings Manufacturing Districts</i>	<i>Railroad Facilities in North-west Section of City</i>	<i>Elimination of Grade Crossings</i>
<i>Streets and Highways</i>		<i>Traffic Routes for Vehicular Tunnel</i>	<i>Traffic Routes to Ferries</i>	<i>Continuity of Business Throughfares</i>	<i>North and South Heavy Traffic Throughfares</i>	<i>Separation of Autibus Trolley &amp; other Vehicular traffic</i>	<i>Street &amp; Traffic Signs</i>	<i>Elimination of Central Ave. Elevated Railway</i>
<i>Passenger Transportation</i>		<i>Traffic Conjestion on Important Throughfares</i>	<i>Increased facilities at Summit Ave. Station</i>	<i>Improvement of Trolley Service</i>	<i>Supplementing trolley service with autibus lines</i>	<i>Relocation of Entrances &amp; Exits at Grove St. Sta. H. &amp; N. R. R.</i>	<i>Extension of Tube Service to Marion Station</i>	<i>Subway under Hudson County Boulevard</i>
<i>Housing and Zoning</i>		<i>Present &amp; Future Housing Facilities</i>	<i>Review Findings City Zoning Commission</i>	<i>Study Present Building Ordinances</i>				
<i>Water Supply and Sewage</i>		<i>Disposal Plants on Westerly Slope</i>	<i>Improvement of sewage facilities for manufacturers</i>	<i>Maintenance of Sewers</i>	<i>Polution of Watershed</i>	<i>Salt water High Pressure Fire Service</i>	<i>Water Waste</i>	<i>Construction of Trunk Sewer with N.Y. as alternative to Disposal Pl.</i>
<i>Real Estate</i>		<i>Relationship between Improvements and Property values</i>	<i>Analysis of Railroad rateables and land values</i>	<i>Distribution of Cost of Public Improvements</i>	<i>Examination of Interstate Commerce Com. Valuations</i>			
<i>Light, Power, Telephone &amp; Telegraph</i>		<i>Street Lighting</i>	<i>Commerical Power</i>	<i>Placing of overhead wires underground</i>	<i>Reduction in the number of Trolley and Other Poles</i>	<i>Municipal Lighting Plant</i>	<i>Telephone Facilities</i>	
<i>Garbage &amp; Ash Removal</i>		<i>Collection and Removal of Garbage and Ashes</i>	<i>Separation of Garbage and Ashes</i>	<i>Garbage Disposal Plant</i>	<i>Utilization of Garbage</i>			
<i>Parks, Playgrounds &amp; Recreation</i>		<i>Playgrounds</i>	<i>Parks</i>	<i>Development of Street Intersections</i>	<i>Swimming Pools &amp; Boating Parks</i>	<i>Development of Bluff from Fairmount Ave. to Hoboken</i>	<i>Consolidation of all Recreation Facilities</i>	<i>Tree Planting</i>







music, have undertaken the sometimes very heavy task of correcting these errors, have paid the bill and have lived to see the realization of their ambition in the resulting growth of commerce, industry, health and general prosperity of the city.

Time for regrets was yesterday. The future begins tomorrow; therefore, plans for the future progressive development should begin with today.

A proper plan for the rational development of Jersey City involves the following primary problems:

**THE CITY PLAN,  
THE RAILROAD SITUATION,  
HARBOR IMPROVEMENTS.**

Each of these divisions present many features requiring detail study and development.

The work done by the Board will be described under the following titles, conforming to the Plan of Scope.

**City Plan**

Streets and Highways.  
Housing and Zoning.  
Passenger Transportation.  
Parks, Playgrounds and Recreation.  
Garbage and Ash Removal.

**Steam Railroads**

General Synopsis.  
Reduction of Railroad Occupancy of the Hudson River Waterfront.  
Proposed Belt Line Railroad.  
The Fairmount Terminal.

**Harbor Improvements**

Marine Terminals and Waterways, including  
The Hudson River Waterfront.  
The South Cove Development.  
Disposition of the Morris Canal.  
The West Waterfront.  
Deeper Channels in Newark Bay and the Hackensack River.

The plan of scope was necessarily tentative, the subjects developing as the investigations progressed, showing the necessity for amplification of work upon some and conversely the reduction of time and effort upon other subjects. The original plan of scope was found, however, to quite adequately outline the work to be done.

A general map of Jersey City showing the improvements herein recommended will be found folded in the back cover of this report, together with a number of other maps covering details of the City Plan.



# The City Plan

The street system of the average city comprises from 25 per cent. to 40 per cent. of its total area. Complicated and crooked lines of travel through the city stunt its development, lead to congestion and isolation of districts and prevent normal development of the social, business and industrial life of the community. A properly developed street system, on the other hand, articulating the entire city by lines of easy travel to and from the business centers, homes and places of amusement, is the greatest factor in normal growth of the city and the health and welfare of its inhabitants. A city of broad streets, beautiful vistas and edifices reflects its atmosphere upon its inhabitants, leads to the broad mental development of its citizens, instilling pride in their community within them and consequent loyalty to its interest.

It is unnecessary to talk about what might have been accomplished in the past if a proper plan had early been provided for the progressive development of Jersey City. Our proposed plan begins today and is meant for progressive future development.

The functions of a proper city plan are three-fold:

*First:* To so adjust the existing conditions that they will adequately meet the needs of the present and will be ample to accommodate future growth and expansion of the City for a reasonable period.

*Second:* To provide a progressive program of how the work recommended is to be accomplished within the financial means of the City.

*Third:* The control of the program to insure its execution upon the lines recommended.

Most large cities are evolved through the consolidation of a number of smaller communities more or less widely separated, resulting in the connection of these outlying districts by main arteries of travel, thus often creating several distinct community centers, where business and social life is concentrated. This has been the case in Jersey City.

The creation of an ideal street system in an old city is almost impossible of accomplishment; nor can a general rule be followed. No two cities are exactly alike in their important features. The topography, type of business, its population and probable future growth are all factors. A fundamental need is the creation of good thoroughfares connecting the business centers of the City with the residential and suburban districts, these intersected by circumferential streets at reasonable distances from the community or business centers.



BERGEN SQUARE, 1852. (From an Old Print).





PRIOR'S MILL. (Located near what is now the corner of Fremont Street and Railroad Avenue.)

(From an Old Print.)

The longer improvements are delayed the more costly they become; time is, therefore, of the essence of city planning, for each day creates new obstacles to be removed.

A proper street system with wide roadways of easy gradient forming continuous routes of travel traversing the city, throughout its length and breadth, connecting the business and social centers, will result in rapid transportation of passengers and merchandise and will be the greatest factor in attracting population and prosperity.

### Decorative Development

A most important feature of the City Plan is the development of streets, avenues and civic structures upon artistic and decorative lines. A beautiful city is a better place to live in and will insure health, pleasure, happiness and civic pride in its inhabitants. Civic or community centers can be connected by parkways; street intersections can be made beauty spots at many points. Public buildings and edifices should be grouped together artistically around public squares. Shade trees should be planted to beautify the residential districts.

Coming through Jersey City from the Hudson River the traveler is greeted by a view of railroad yards and related structures extending apparently without limit in every direction. West of this railroad panorama extend many industrial establishments along the railroads, none of them things of beauty. The impression upon the passenger who views the picture from the car window is that Jersey City, to say the least, is an unattractive place in which to live.

Much of this condition is unnecessary. A general clean-up by the railroads and industrial establishments would do much to improve these conditions. Even railroad and factory developments can be designed to present a pleasing and artistic appearance, certainly offense to the eye can be avoided.

Some attempt has been made by the Pennsylvania Railroad to clean up in the cut through Jersey City Heights. The Harsimus Cove or Long Dock Region, however, presents an appearance of chaos and filth. The Erie Railroad maintains a terminal at the foot of Pavonia Avenue which can best be described as disgraceful. It has been a standing joke in the community for years. Dirt, filth and lack of repair predominate and the structure is apparently a firetrap. It is doubtful whether another such trunk line terminal is in existence. It should be examined by the City authorities for its safety and ordered removed if found unsafe. Such structures are a continuous discredit to the City of Jersey City. The present condition of the Pennsylvania Railroad station at Exchange Place, Jersey City, is a credit neither to the railroad company nor the city.



An examination should be made of all the railroad structures in Jersey City along these same lines and their repair or removal effected by the City authorities. Proposed future structures should be passed upon by the City authorities before plans are approved or the structures allowed to be erected.

### City or Community Centers

It was at first the intention of the Board to create a main city center toward which would converge all the main arteries of travel of the City. A study of the situation, however, quickly disclosed that this idea was impracticable on account of the peculiar topography of the City.



### BERGEN 1841

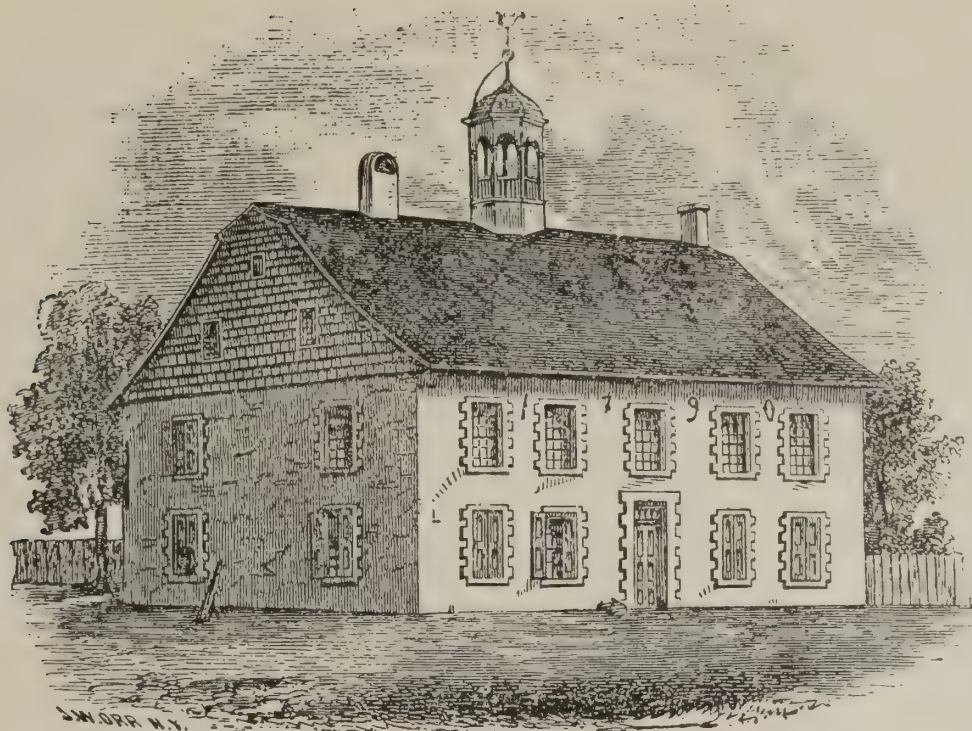
Reproduced from the "Douglass Map" of 1841, by Mr. John W. Heck.  
Used here through the courtesy of the Historical Society  
of Hudson County.

Jersey City is topographically divided into two parts by the southerly extension of the Palisades. The easterly half of the City extending at an elevation little above tidewater from Hoboken to Bayonne; the westerly portion including the old town of Hudson City lying upon the Heights dividing the watershed. Like many old cities, Jersey City was formed by the consolidation of a number of contiguous communities, connected by routes of travel which to this day form the main arteries of communication, the old communities retaining much of their business and social individuality. The selection of one main city center was, therefore, impractical, and it was decided to create a number of such city or community centers connected by broad and continuous streets beautified by architectural and parkway developments where practicable. This to be supplemented by the straightening of crooked streets, the elimination of congested or undesirable areas and the creation of plazas and open places at important highway intersections.

Map folded in back cover shows the business and community centers and the connecting main streets. Upon this map are also shown the proposed street corrections and extensions and the proposed plazas.

Pages 22 to 25 show a number of suggested plans working out street intersections and a finished plan for a proposed parkway. The table on Page 22 shows proposed street changes.



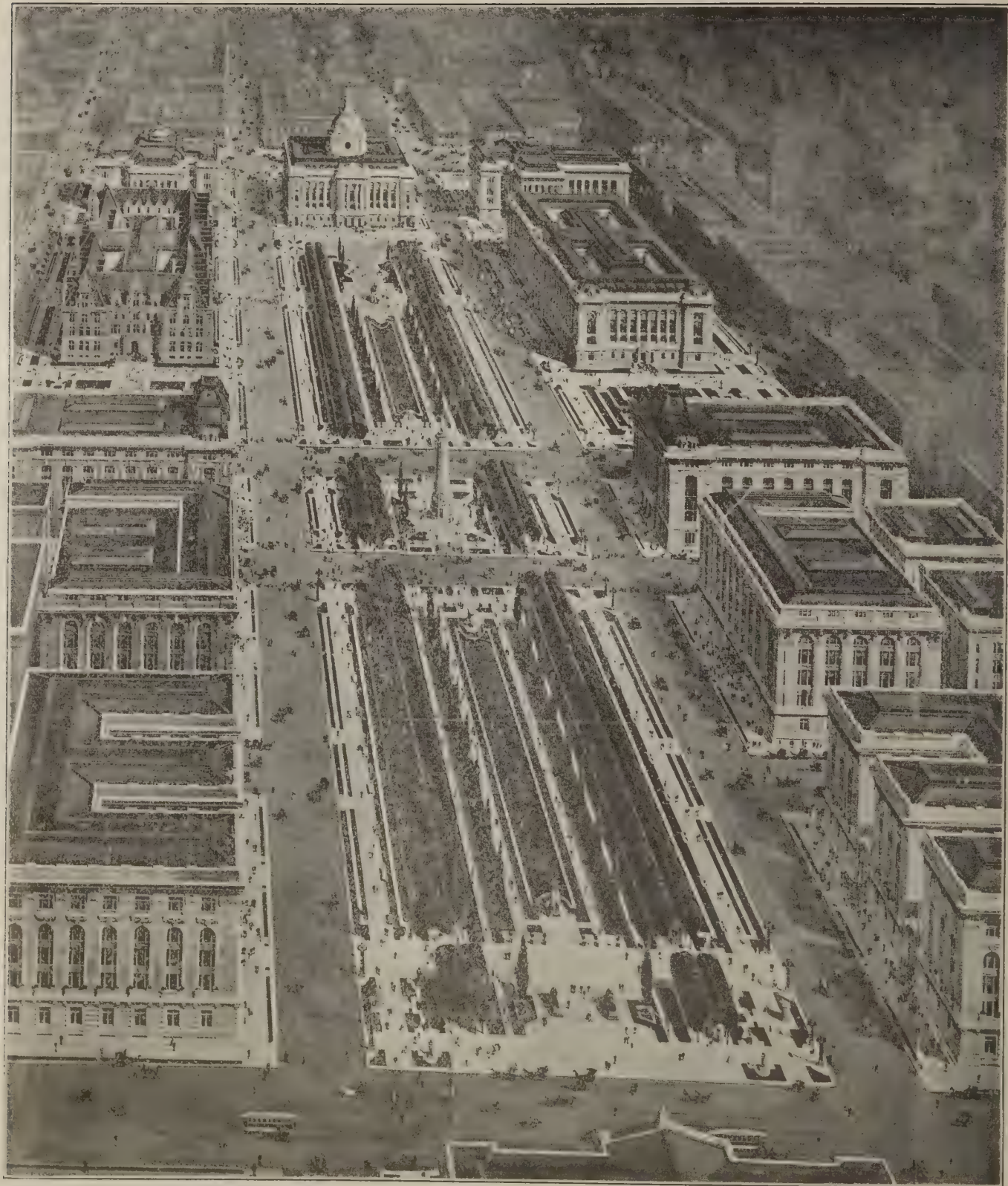


COLUMBIAN ACADEMY  
(From an Old Print.)



PUBLIC SCHOOL NO. 11—SITE OF OLD COLUMBIAN ACADEMY





PROPOSED CIVIC CENTER, SAINT LOUIS .

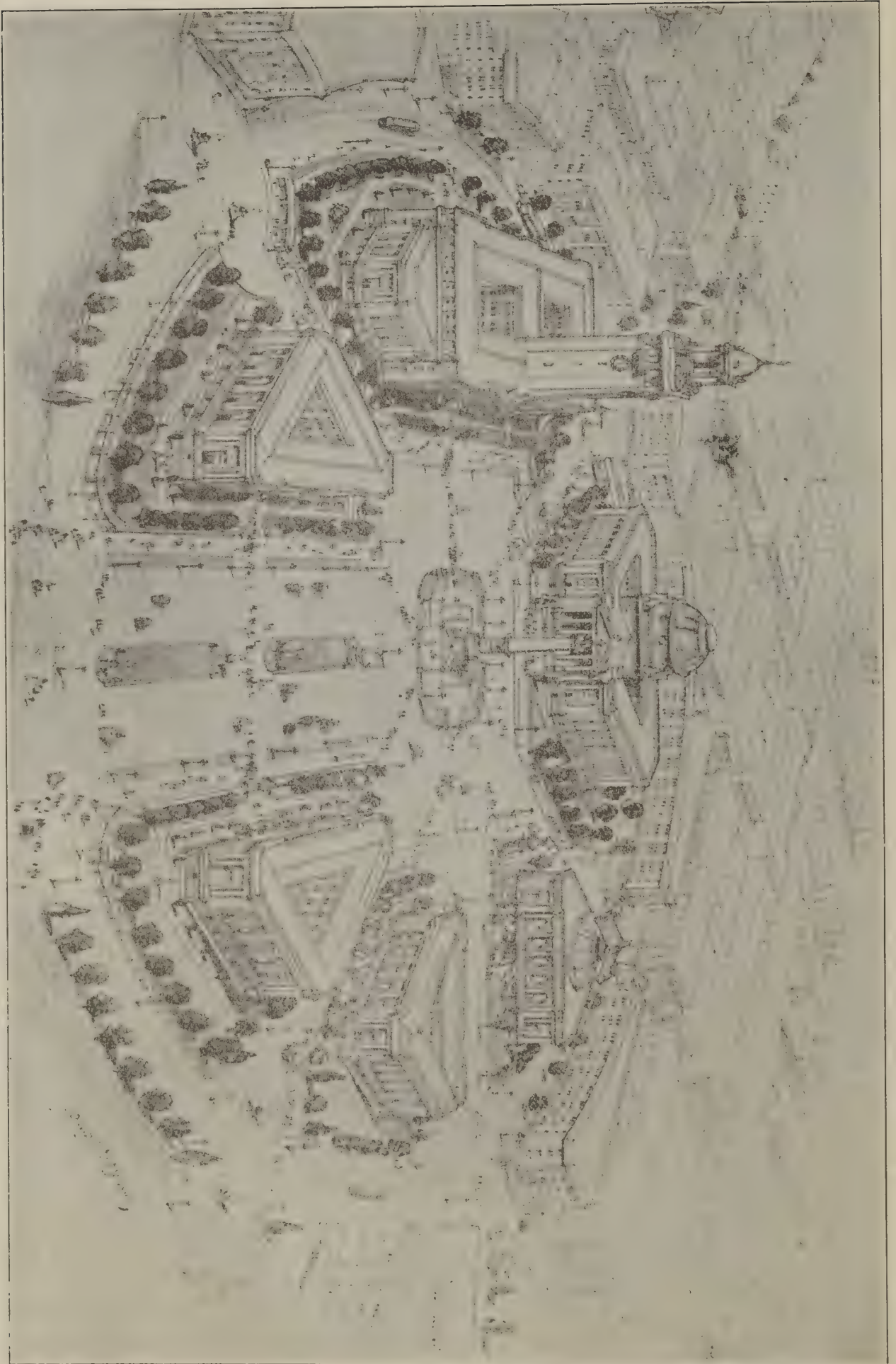




MILWAUKEE. PLAN FOR THE PROPOSED CIVIC CENTER, AS RECOMMENDED BY THE METROPOLITAN PARK COMMISSION.



SEATTLE—PROPOSED GROUP OF PUBLIC BUILDINGS, SOUTH ON CENTRAL AVENUE





## City Planning Commission

It is suggested that a City Planning Commission be created to control the future development of the City upon lines of architectural beauty as well as utility, to pass upon all plans for public buildings, monuments and other edifices and their location, to prevent in future the foisting upon the community of undesirable inartistic and unsightly structures and to create step by step a city beautiful.

Such work is one of no small labor. The period of time allowed the Board of Engineers is too short for the preparation of a full City Street Plan; no more than an outline has, therefore, been attempted herein, to point out the way for the creation of a new Jersey City, a city beautiful and harmonious, attractive alike to those who make it their home and to those viewing the City on their way elsewhere.

### Vehicular Tunnel Approaches and Plazas

One of the finest opportunities for work upon these lines presents itself in an architectural development of the street system adjacent to the Vehicular Tunnel entrance at 14th Street; ample parkways, plazas, widened roadways and beautiful vistas through colonnades and archways should here greet the visitor as he emerges from the tunnel, presenting to him the impression of a beautiful gateway to the State of New Jersey, a picture to cling in his memory, spreading the fame of Jersey City's growth as a city beautiful and prosperous. This work should proceed at once, since the tunnel will be completed in about 1924.

## Streets and Highways

### Vehicular Tunnel Routes Through Jersey City as State Highways

One of the first important problems confronting the Board of Engineers was the planning of traffic routes through the City to accommodate the expected very large vehicular traffic through the proposed *New Vehicular Tunnel Under the Hudson River*, extending from Canal Street, Manhattan, to 14th Street, Jersey City. The situation was studied in consultation with the tunnel authorities and others interested, and traffic routes have been selected and laid out upon the map of the City. The plan of these proposed routes was formally presented to the City Commissioners on June 15, 1920.

Since the Tunnel is an interstate highway, and since most of the traffic will be through the City to points beyond, the cost of such traffic highways should be a State expenditure and not fall upon the City of Jersey City. Map, page 18, shows the proposed routes as described in the resolution transmitted by the Board of Engineers to the City Commission on June 15th, 1920, viz.:

"The Board of Engineers, Jersey City Development Plan, recommends the adoption of the following traffic routes for the Vehicular Tunnel, viz.:

#### Tunnel Route No. 1.

- (a) Along line of Marcy Avenue, from Lincoln Highway to Broadway; width 100 feet.
- (b) Along line of Broadway, Marcy Avenue to Tonnele Avenue; width 80 feet, present width.
- (c) Extension of Broadway across Pennsylvania Railroad to Cottage Street and along Cottage Street to Summit Avenue; width 80 feet (widening of Cottage Street).
- (d) Extension through Blocks Nos. 525 and 526 to Hoboken Avenue and Central Avenue; width 80 feet.
- (e) Along Hoboken Avenue to meet extension of 12th Street—width 66 feet; present width.
- (f) Along 12th Street to Henderson Street; width between Jersey Avenue and Henderson Street—80 feet (widening).

#### Bridges and Viaducts—

Across Pennsylvania Railroad, width 60 feet.

From Hoboken Avenue to Jersey Avenue; width 60 feet.

#### Southerly Extension of Route No. 1.

From Lincoln Highway Route No. 1 to extend southerly to and along Hackensack Avenue to the proposed new Vehicular Bridge to cross Newark Bay immediately adjacent to the Pennsylvania and Lehigh Valley Railroad Bridge.

Route No. 1 from the Vehicular Tunnel Plaza to the Lincoln Highway, to be called *Rotary Highway*.

It is further recommended that *Henderson Street* from Grand Street to the Hoboken City Line be widened to a new width of 100 feet. This widening to be a part of the *Tunnel Construction* and the cost thereof to be borne by the States of New York and New Jersey.



"It is further recommended that the *Rotary Highway* and the extension of Route No. 1 southerly from the Lincoln Highway, leading to the proposed new Vehicular Bridge across Newark Bay be part of the State Highway System and that its cost be financed by the State of New Jersey."

The Board directs attention to the necessity of widening the roadways of the existing street system adjacent to the Tunnel Entrance. A study of these streets to be made and plans for widening the roadways of existing streets, the creation of parkway spaces and architectural decorative treatment of streets leading to the Tunnel Entrance should be made.

It will be noted that Henderson Street widened to 100 feet is recommended to be extended to connect with the proposed Morris Canal Motor Truck Speedway and the proposed South Cove Development. It is expected that the railroad trunk lines will develop their yards for car-to-motor-truck delivery along Henderson Street, and this widened street should result in a Warehouse and Cold Storage Plant development along its entire length with railroad and motor truck connections, making possible direct delivery to consumer in New York via the new Vehicular Tunnel. This should go far to develop this section of New Jersey and at the same time relieve lightering across the Hudson River.

### **The Motor Truck Speedway**

The motor truck rumbles through our city streets, gigantic in size and of great weight, carrying loads a few years ago considered as enormous for any vehicle other than a railroad car. It is destructive to our best pavements and extremely dangerous to human life in the City. It impedes the progress of other vehicles.

This type of vehicular traffic is constantly growing in extent, and must soon be confined, as far as possible, to roadways especially constructed to withstand the stresses brought upon them by the impact of these trackless locomotives.

Modern highway construction has not fully kept pace with the rapid development of motor truck transportation. The operation of these heavy trucks results in very high maintenance costs due to the constant damage and destruction of the roadbeds.

Through or trunk line traffic of this kind should, as far as possible, be directed over routes remote from the city business streets, and these routes should be built amply strong enough to withstand the effect of these heavy vehicles.

### **A Motor Truck Belt Line**

An excellent opportunity to create such a route in Jersey City, deflecting the through motor truck traffic around the city instead of through it, while at the same time tapping the industrial sections and the waterfront developments of the city, presents itself in the utilization of the Morris Canal bed and right of way as the route of a Motor Truck Speedway.

This speedway would permit motor trucks to travel at high speed around the entire city, from Henderson Street southerly through the industrial and waterfront developments of the Lafayette, Claremont and Greenville Sections, along the entire proposed west waterfront development of the city to Lincoln Highway, where it would connect with the proposed Rotary Highway, the main traffic route from the Hudson River Vehicular Tunnel. The portion of this Motor Truck Road extending from Henderson Street to 59th Street, Bayonne, could be reserved for motor trucks at high speed.

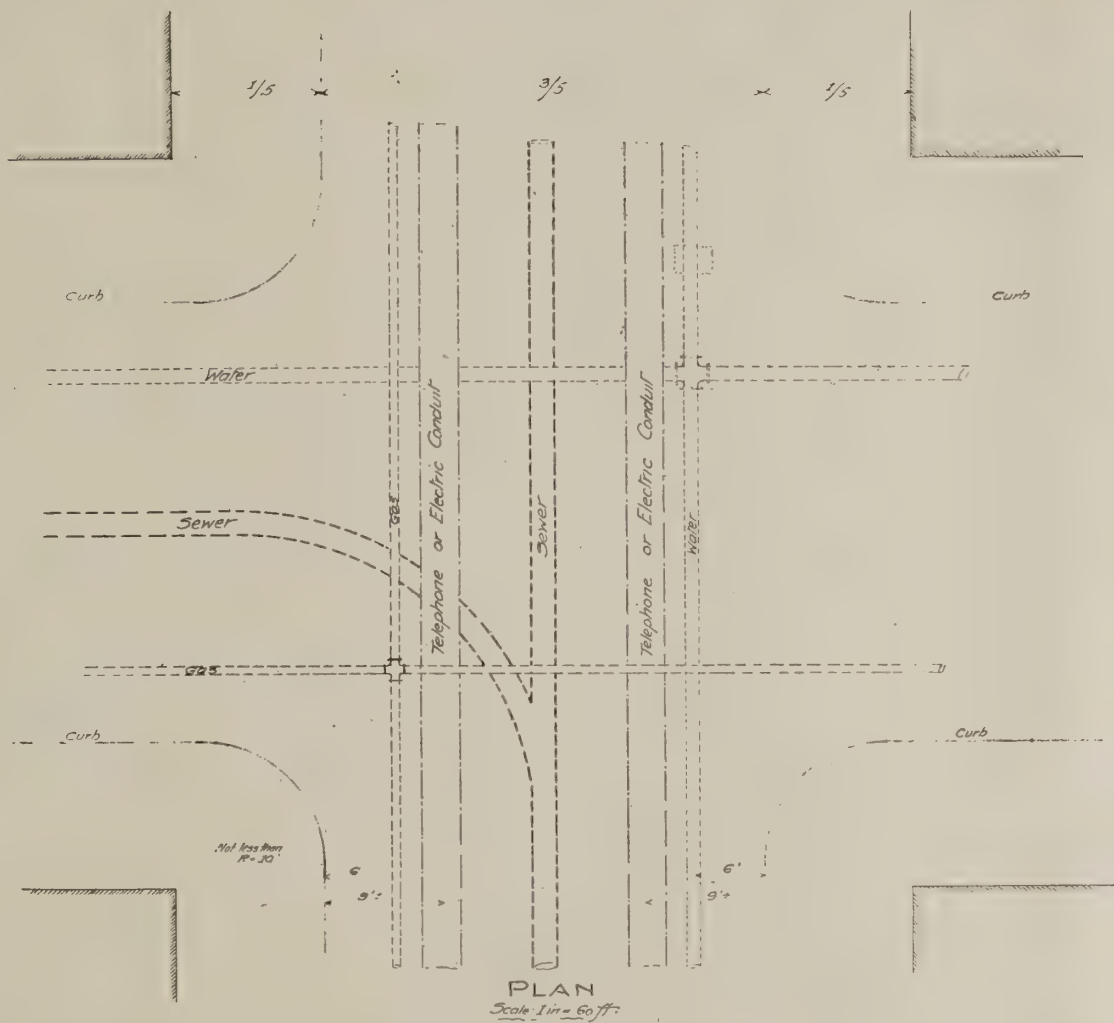
This road would be of incalculable value in developing the west waterfront of the City and industrial establishments along its entire route. It would connect with the proposed Essex-Hudson Vehicular Bridge across Newark Bay at 59th Street, Bayonne. This Motor Truck Speedway as a State Highway has been recommended by the Board of Engineers as the best disposal of that part of the Morris Canal extending through Jersey City. Its features and advantages have been more fully described under the chapter of this report treating of the "Disposal of the Morris Canal in Jersey City."

### **Standardization of Street Construction**

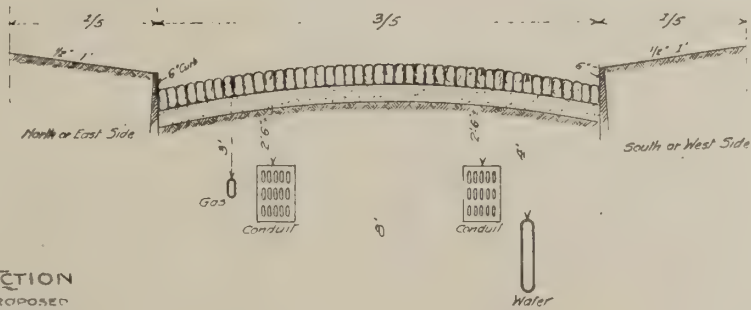
Tentative plans have been adopted for standard street dimensions, determining the width of roadway and corresponding sidewalk widths. The location of subsurface construction, such as sewers, water and gas mains and conduits, has been standardized as far as possible.

Minimum car clearances at street intersections were adopted. While standard dimensions of this class are desirable in the development of street extension and new streets to be laid out, their requirements must not be considered as inflexible in the reconstruction or repair of existing streets where a strict adherence to such standards would cause unnecessary expense and hardships upon the adjacent owners and the city itself.





PLAN  
Scale 1 in = 60 ft.



PLAN AND SECTION  
STUDY FOR PROPOSED  
STANDARD STREET  
Scales as indicated

SECTION  
Scales { Hor. 1" = 6'  
Ver. 1" = 2'

4 24 21

S-H-4



These adopted standards should primarily be a guide for future construction.

The standardization of types of pavement to be used depends upon the nature of the traffic for which the street system is intended, which can be classified as follows:

- Main traffic routes for heavy traction.
- Secondary traffic routes for ordinary business use.
- Residential streets accommodating light vehicles only.

The heavy motor truck traffic, constantly increasing in volume, must soon be confined to definite types of pavement specially constructed to withstand the shock of this traction, which is both destructive to present pavements and dangerous to other vehicular traffic. There should, therefore, be a segregation of traffic, assigning to each type certain routes, each route to be paved to withstand the type of traction for which it is intended.

The progressive realization of such a system of paved streets requires a very thorough study of transportation conditions as a condition precedent to a progressive paving program and a traffic route plan for the entire city.

A progressive paving plan is a very important feature of city street development; such a plan should at once be prepared with the object of so conducting new paving work that through routes of traffic will be created along the entire length of the city and crossing it. Isolated patches of good pavement alternating with bad roadways is of no use in the development of the city.

## **Proposed Street Improvements in the City as State Highways**

### **The Rotary Highway**

The Rotary Highway extending from the proposed Vehicular Tunnel under the Hudson River, via 12th Street widened to 80 feet, with a new viaduct to reach the Heights at Hoboken Avenue; thence along Hoboken Avenue, Cottage Street, a new bridge over the Pennsylvania Railroad, along Broadway to Mallory Avenue extended, along Mallory Avenue to the Lincoln Highway.

### **Hackensack Avenue (South)**

The Morris Canal bed to be utilized as the right of way for Hackensack Avenue, extending from the Hackensack River at Clendenny Avenue to the proposed Essex-Hudson-Vehicular Bridge across Newark Bay at 59th Street, Bayonne.

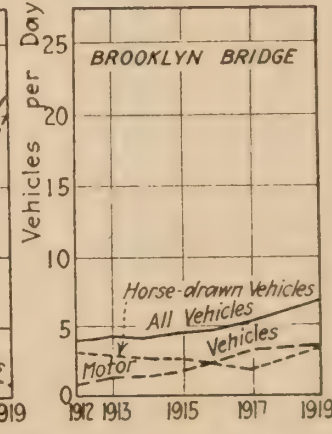
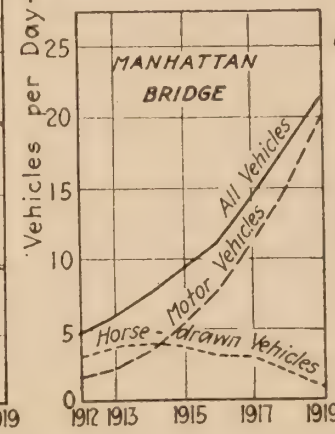
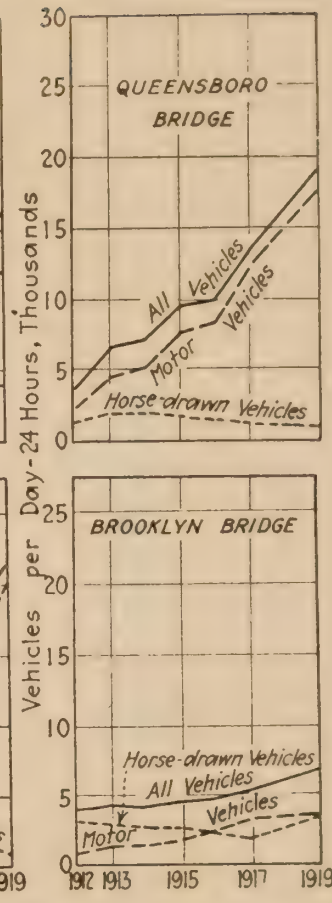
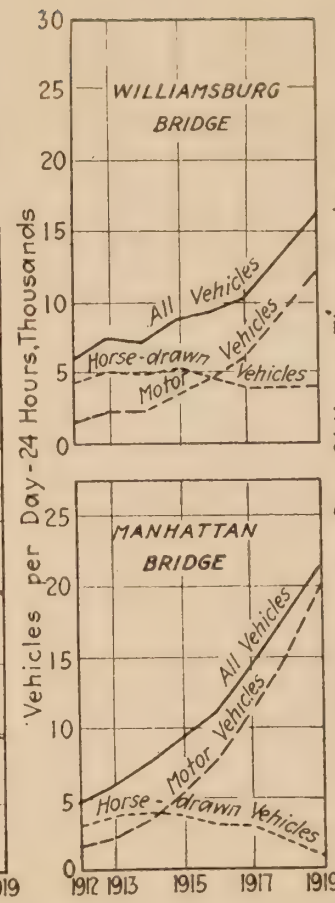
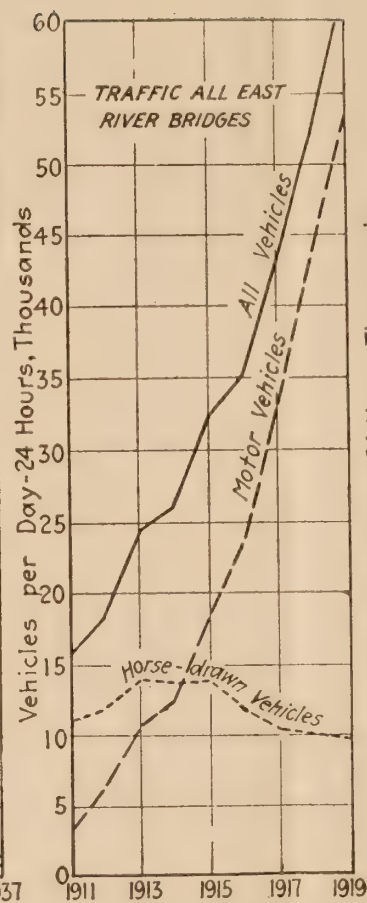
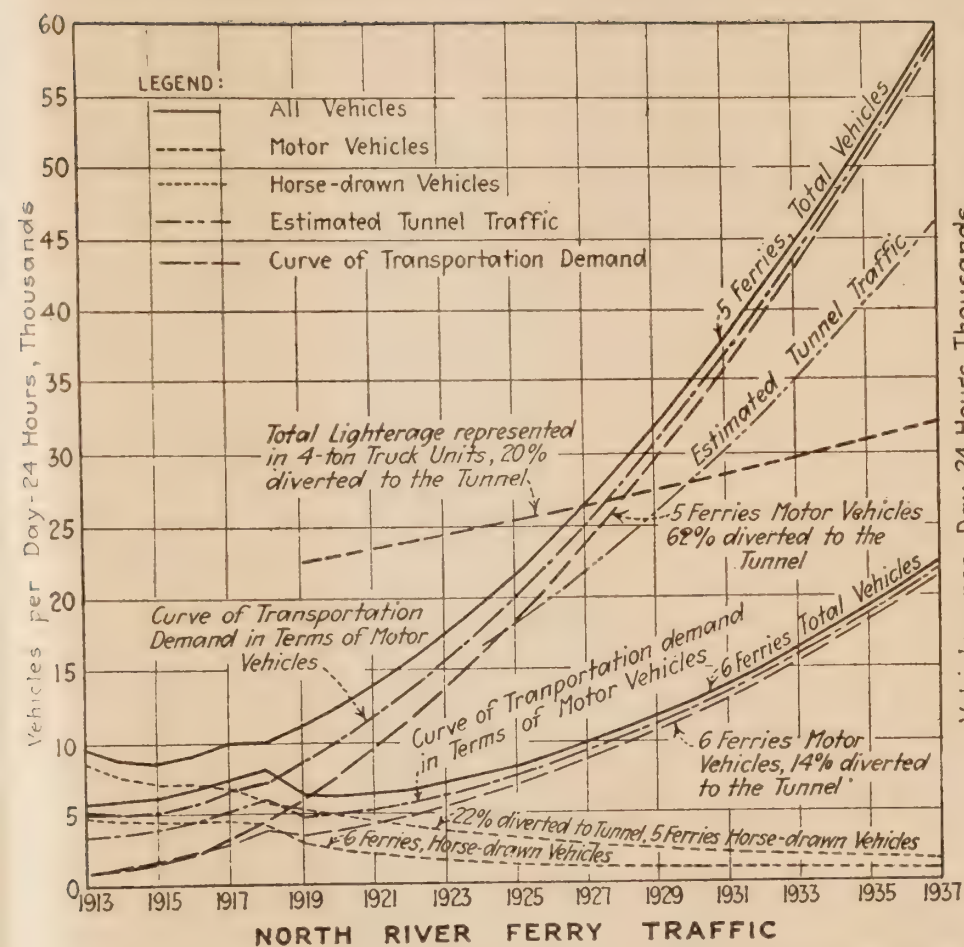
### **The Morris Canal Motor Truck Speedway**

A high speed motor truck road utilizing the present Morris Canal bed from Henderson Street to about 58th Street, Bayonne, thence connecting via about 58th Street with the proposed Essex-Hudson Vehicular Bridge across Newark Bay.

### **Henderson Street**

Henderson Street to be widened to 100 feet, from the Hoboken City Line to the Morris Canal. It is recommended that the widening be made a bi-State or State expenditure as part of the Vehicular Tunnel construction. Along the widened street should develop freight sheds, warehouses, cold storage plants and general railroad appurtenances for direct routing of commodities, foodstuffs and general merchandise for delivery and consumption in New York City. Much of the commission business in foodstuffs now transacted along the lower west side of Manhattan, the Wallabout Market and other locations can be handled here with direct delivery to the store door or the consumer by motor truck. This development should be a large factor in relieving the lighterage across the Hudson River and is, therefore, of importance to both New York and Jersey City in relieving the harbor congestion. The cost of the widening should therefore be a State or bi-State expenditure. It is pointed out here that the greatest share of the benefits derived from the Vehicular Tunnel construction are gathered by New York City. The traffic facilities through the tunnel are a new means of delivery in Manhattan, Jersey City deriving only a small share of the business through the tunnel, most westbound traffic going through Jersey City on the way elsewhere. The widening of Henderson Street is therefore a matter of approach articulation for the tunnel, on the Jersey City side. It should be paid for by New York and New Jersey in proportional shares. It is pointed out here that the estimated expenditure for approach construction to the Vehicular Tunnel is nearly four times as great in Manhattan, where the greatest benefit accrues, than in Jersey City, where the facilities required are in the greatest measure made necessary only as a further means of transportation to Manhattan.





**EAST RIVER BRIDGE TRAFFIC**

**TRAFFIC CURVES SHOWING DATA ON EXISTING BRIDGE AND FERRIES AND PROBABLE TUNNEL TRAFFIC**



**EXPLANATION**

Proposed Rotary Highway ————

Supplemental Routes Tapping Proposed Rotary Highway - - - - -

Proposed New Viaduct on 12th St. ————

SCALE OF FEET

0 500 1000 2000 4000

Railroads

Elevated Railroads

C. S. Hammond & Co., N. Y.



Connecting route will join Frelinghuysen Avenue at Waverly Park in the City of Newark, leading to the present terminus of State Highway Route No. 1 in the City of Elizabeth

# MAP SHOWING PROPOSED ROTARY HIGHWAY

CONTAINING THE  
VEHICULAR TUNNELS  
WITH THE  
PRESENT STATE HIGHWAY ROUTE NO. 1  
ADOPTED BY  
JERSEY CITY DEVELOPMENT PLAN  
BOARD OF ENGINEERS

JOHN SCHREIBER  
Engineer, West Side  
Freight Terminal, Newark  
J. J. DE CASTRO  
Engineer, 12th St. Viaduct  
FREDERICK DUNHAM  
Engineer, 12th St. Viaduct  
JOHN F. MURPHY  
Engineer, Hudson County Toll Bridge  
CHARLES A. VAN RESEN  
Engineer, 12th St. Viaduct



## County Highways

### New Boulevard Bridge at Summit Avenue Station

The present traffic congestion on the Boulevard, at the Summit Avenue Station of the Hudson and Manhattan Tube and adjacent area, has reached such a stage that measures should be taken for relief from this condition without delay.

While the Boulevard authorities have an excellent "Stop-Go" signal system at the southerly end of the Boulevard Bridge, this results necessarily in holding up vehicular traffic during the crossing of pedestrians in rush hours. Many people cross without observance of the traffic signal, a dangerous practice leading to accidents. The Board has given considerable study to this condition, particularly also with respect to the parking of automobiles and other vehicles at this point.

A study has been prepared, showing a plan whereby the congestion can be relieved, by incorporating within the new Boulevard Bridge, construction of which is contemplated by the County authorities, certain facilities for accommodation of vehicular traffic and for sub-surface passageways by means of which pedestrians can cross under the Boulevard surface instead of over it. The plan has formed the subject of a special report submitted to the City Commission on November 16, 1920, with the recommendation that the incorporation of these traffic facilities in a proposed new bridge be taken up with the Board of Freeholders and the Boulevard Commission as follows:

"Your Board of Engineers has given considerable thought and study to the present traffic conditions adjacent to the Summit Avenue Tube Station, particularly in respect to the congestion caused by the parking of automobiles and other vehicles at this point and the danger to pedestrians crossing the Boulevard at both ends of the present Boulevard Bridge over the Pennsylvania Railroad.

The Board has worked out and presents herewith a plan whereby these conditions can be remedied in great measure by providing facilities for automobiles and sub-surface passage for pedestrians in direct connection with a proposed New Boulevard Bridge, construction of which is contemplated by the County and Boulevard authorities.

The plan shows a system of covered platforms upon the proposed new bridge, these platforms being directly connected to the Tube Station by means of stairways leading to passenger walkways extending transversely from the bridge to the Tube Station. Tube passengers or others desiring to cross to the west side of the Boulevard can do so by way of continuous passageways extending under the bridge from side to side.

The proposed automobile platforms and traffic are intended to occupy the center portion of the proposed new bridge, the through vehicular traffic being confined to the outer roadways.

A circular plaza development is shown at each end of the proposed bridge for relief of the congestion of traffic. The automobile traffic to utilize the interior of these areas for circling in the courses of their travel north or south on the Boulevard, the through traffic confining itself to the outer periphery of the circles.

At the north end of the bridge is shown direct connection with the proposed Pavonia Parkway, which will bring to this locality the pleasure vehicles passing through the New Vehicular Tunnel. The new bridge and plazas architecturally decorative in treatment would here greet the traveler, leaving a lasting impression of the beauties of the city, so necessary an aid in propaganda for development of Jersey City.

The plan is in no sense to be considered a proposed bridge plan, the preparation of which is a function of the County authorities; it is here submitted as a suggestion that the features indicating a remedy for the traffic congestion be considered in connection with the Boulevard Bridge plan.

The study shows a three-arch reinforced concrete bridge 120 feet wide. The plazas at each end necessitate the acquisition of additional lands as shown. The approximate estimated cost of the bridge would be about \$900,000, including land and buildings to be acquired.

An alternate plan would be to omit the two covered platforms and substitute therefor a single covered platform to accommodate all vehicular traffic. The width of the bridge shown, 120 feet, to be retained in this alternate plan, this permitting wider roadways on both sides of the bridge for through traffic.

It is respectfully recommended to your Honorable Board that the matter of incorporating the traffic features and plazas indicated in this study and ways and means for the realization of the improvement be taken up with the Boulevard Commission and the Board of Freeholders with the view of working out a definite plan for this improvement.



## **Municipal Street Changes and Extensions**

### **Pavonia Parkway**

Pavonia Avenue to be made a Parkway from Hamilton Park to the Hudson County Boulevard. To be extended by a new viaduct reaching the Heights at Newark Avenue, near Waldo Avenue.

### **Monticello Avenue**

Extended from Fairmount Avenue on a straight line to Montgomery Street.

### **Central Avenue**

Extended from Hoboken Avenue to Summit Avenue.

### **Bergen Avenue**

To be widened from Fairmount Avenue to Glenwood Avenue, creating an open plaza at Montgomery Street, with a rearrangement of trolley tracks and the creation of isles of safety for passengers.

### **Crescent Avenue**

Extended from Belmont Avenue to Fairmount Avenue.

Extended from Clinton Avenue to Grand Street.

### **Park Avenue**

Extended from Astor Place to Belmont Avenue.

### **Ocean Avenue**

Extended from Crescent Avenue to Bramhall Avenue.

### **Rose Avenue**

Extended from Grant Avenue to Van Nostrand Avenue.

### **Jackson Avenue**

Extended from McAdoo Avenue to Old Bergen Road, creating a Plaza.

Extended from Clinton Avenue to Monticello Avenue at Comunipaw Avenue.

### **Hackensack Avenue, North**

A proposed new street extending from Broadway southerly, generally parallel to the Hackensack River shore to the Lincoln Highway, to connect the Hackensack River waterfront development with the Rotary Highway.

### **Montgomery Street**

To be widened along the southerly side from Grove Street to Jersey Avenue.

### **Better Facilities at Grove Street Tube Station**

The block bounded by Newark Avenue, Grove Street and Railroad Avenue should be eliminated and this area made an open place. Better facilities are required to accommodate the tube passenger traffic to and from this station. The opening of this area would give an opportunity for the planning of a better tube station and would result in development of the surrounding business district, particularly in expansion of the already large retail mercantile establishments located here.

### **Parks and Plazas**

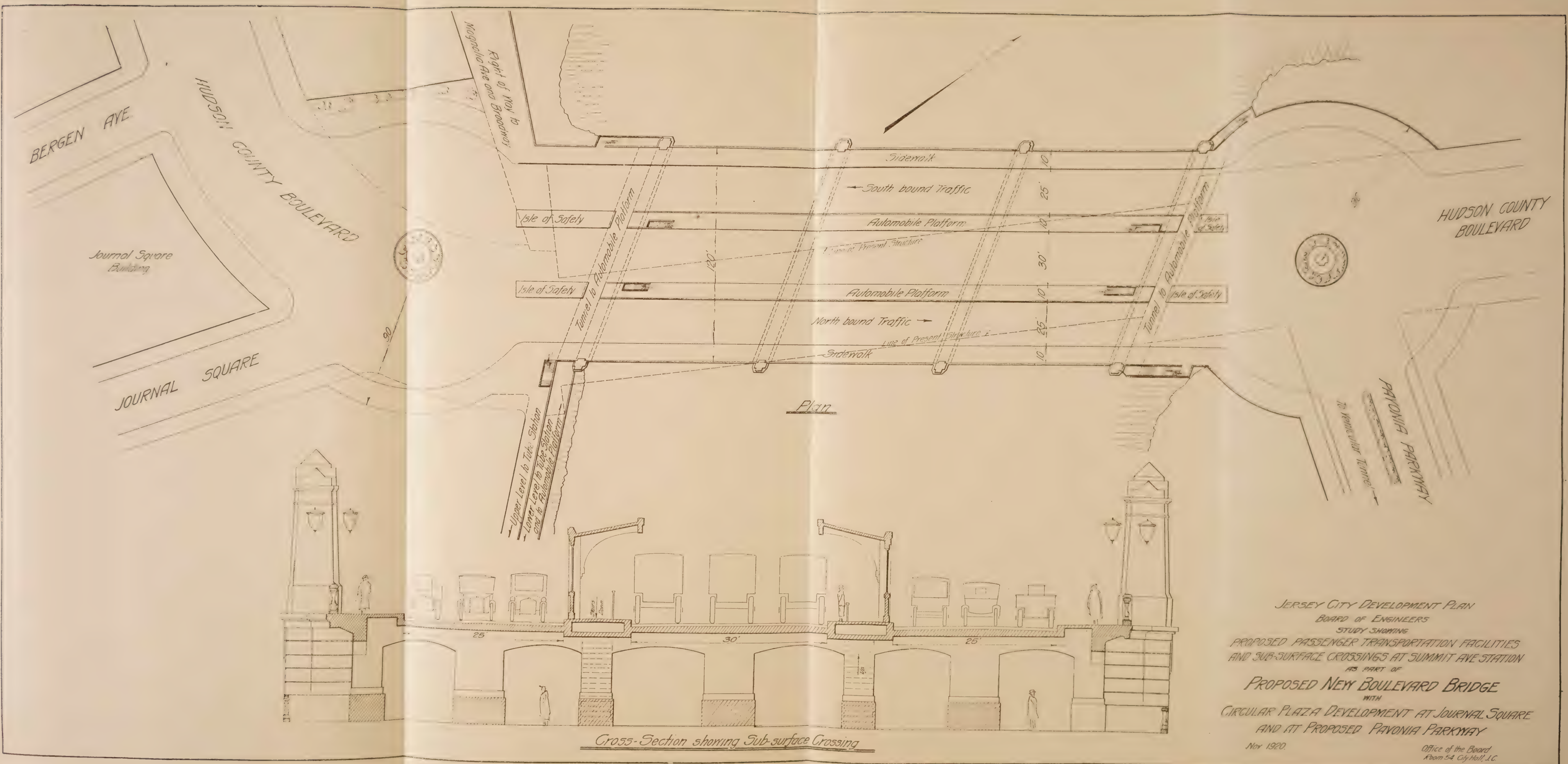
These are described in the chapter on Parks, Playgrounds and Recreation.

### **General Remarks**

The municipal street corrections herein recommended comprise those considered of primary importance by the Board of Engineers. Further study of the City Street System is necessary to amplify these recommendations and make a complete city street plan with a Program, Estimate of Cost and Time Schedule to accomplish the work in a period of years.

No other condition retarding the city's growth and development is more urgent of correction than the creation of an adequate street system in Jersey City. Its cost will be returned three-fold by the resulting increase in real estate values.





JERSEY CITY DEVELOPMENT PLAN  
BOARD OF ENGINEERS  
STUDY SHOWING  
PROPOSED PASSENGER TRANSPORTATION FACILITIES  
AND SUB-SURFACE CROSSINGS AT SUMMIT AVE STATION  
AS PART OF  
**PROPOSED NEW BOULEVARD BRIDGE**  
WITH  
CIRCULAR PLAZA DEVELOPMENT AT JOURNAL SQUARE  
AND AT PROPOSED PAVONIA PARKWAY  
Nov 1920.  
Office of the Board  
Room 54 City Hall, J.C.









JERSEY CITY DEVELOPMENT PLAN.

BOARD OF ENGINEERS.

STUDY SHOWING

PROPOSED PASSENGER TRANSPORTATION FACILITIES.

AND SUB-SURFACE CROSSINGS AT SUMMIT AVENUE STATION.

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— WITH —

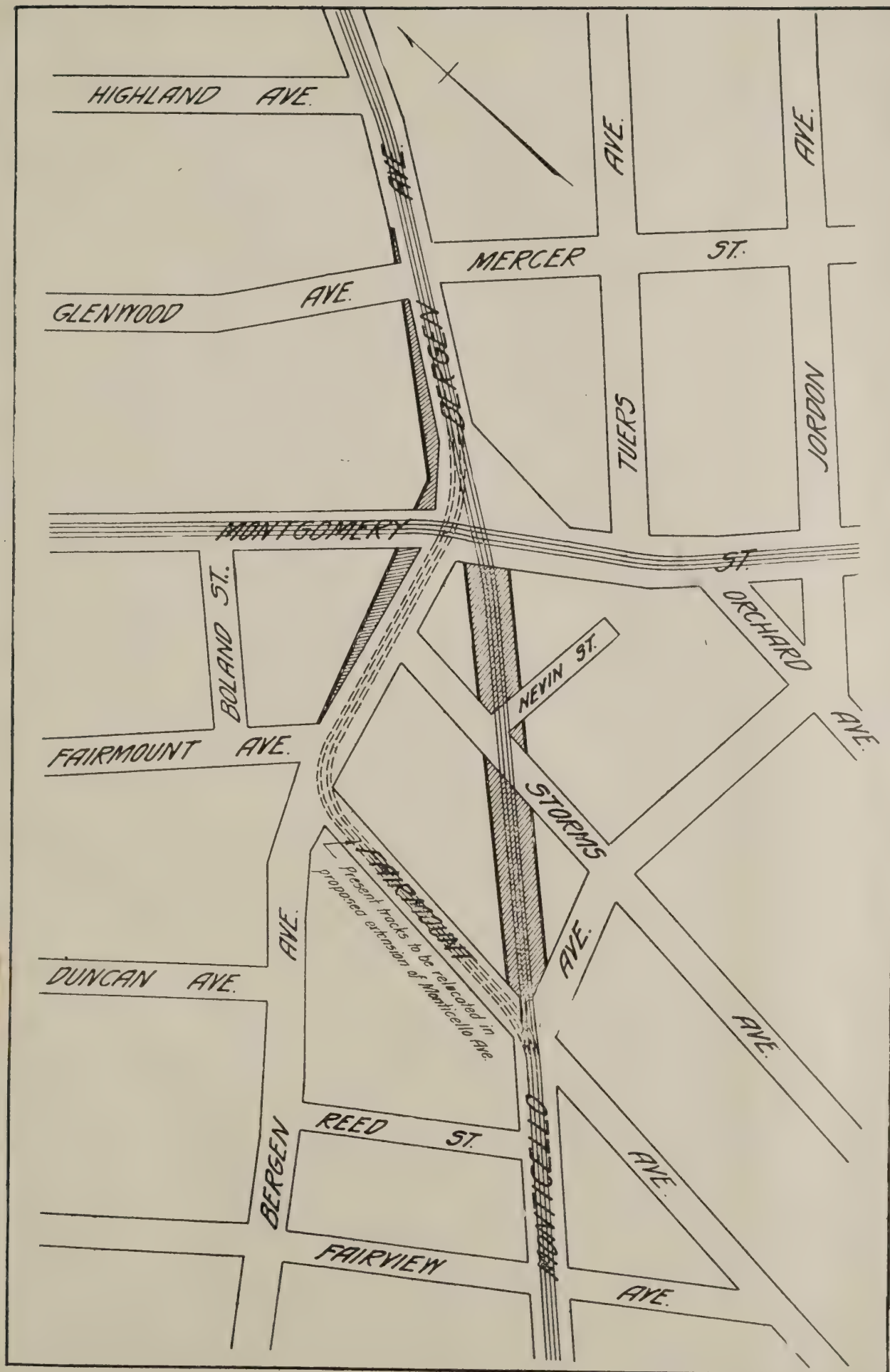
CIRCULAR PLAZA DEVELOPMENT AT JOURNAL SQUARE.

AND AT THE PROPOSED PAVONIA PARKWAY.



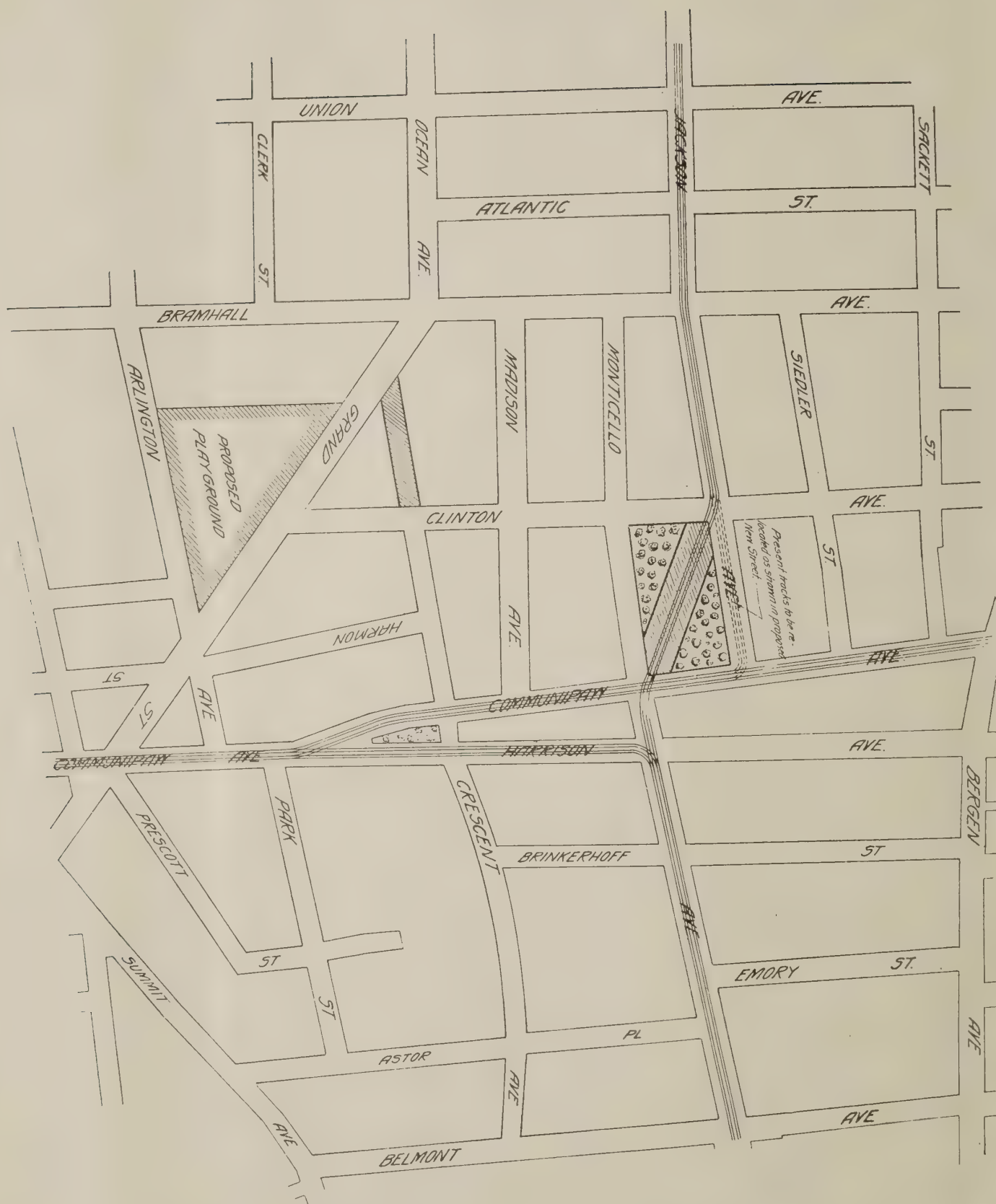






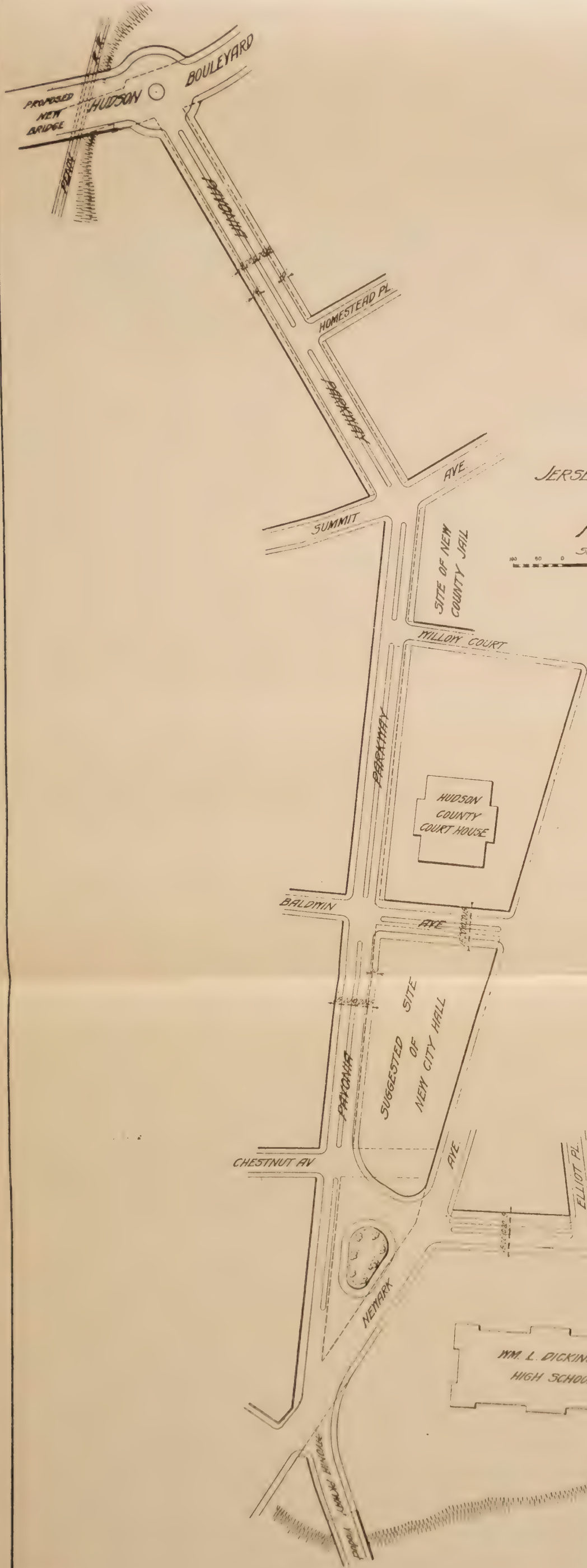
PROPOSED EXTENSION OF MONTICELLO AVENUE AND WIDENING OF BERGEN AVENUE





PROPOSED EXTENSION OF JACKSON AVENUE AND CRESCENT AVENUE

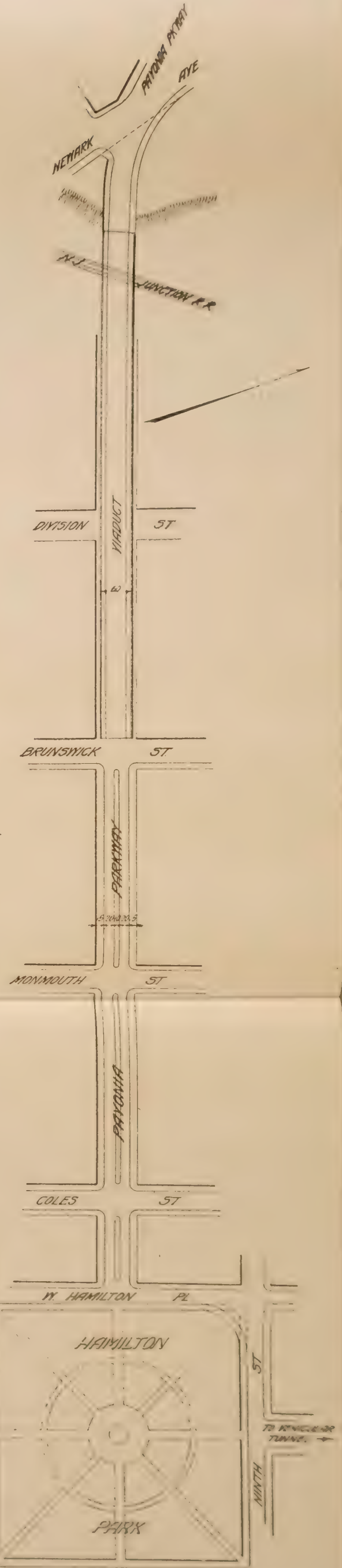




JERSEY CITY DEVELOPMENT PLAN  
BOARD OF ENGINEERS  
PROPOSED  
**PAVONIA PARKWAY**

Scale 0 50 100 150 200  
Nov 1920

OFFICE OF THE BOARD  
Room 54, City Hall, J.C.









# Housing and Zoning

The existing shortage of houses throughout the country has become a very serious condition. No doubt the seizure for war uses of nearly all available building materials, the cessation of building operations for other than war purposes during that period, and the increase in cost of labor and materials during and since the war, are among the primary causes of the greatly reduced activity in building construction. Whatever may be the reason for present conditions, in the final analysis the important thing to be done is to relieve the situation by providing houses for the people unable to find living quarters. To aid in providing these houses for the people is the duty of every American citizen. Corporations, banks, insurance companies, should all aid in financing building construction for this purpose, limiting their profits to a fair return and aiding in the elimination of the spirit of profiteering which seems to have permeated the business of today.

## A Housing Plan for Jersey City

It is the Board's best information that Jersey City faces the same acute conditions as to shortage of homes and high rents as all other cities in the Metropolitan District. This is clearly indicated by the curve diagram shown below, which indicates the increase in population in contrast with the decrease in the construction of houses for the period from 1912 to 1919.

The question is, what can the City Administration do in a constructive way to aid the people in this matter?

Of course industrial housing may be carried on by the various business interests, so we may dismiss this phase of the subject, except to say that any proper industrial plan should be fostered and encouraged by the City. For industrial housing, the City should adopt a liberal policy toward such projects by co-operating with those responsible by suggesting available and desirable real estate as well as to assure proper street layouts, water and sewer connections and lighting facilities. The real field, however, for constructive activity is for the City to take the initiative in some proper and suitable general housing plan.

There are certain factors which must be considered when any housing development is planned.

First and foremost is the financial ability of the proposed occupants.

Second, the location of the proposed housing development and its transportation facilities, both as regards work and amusements.

Certainly, Jersey City has a very large advantage in the fact that there is considerable vacant real estate in the City which can be utilized for housing development and which is well situated as regards transportation via either trolley or train.

It is a well known fact that a week's salary is generally considered a reasonable amount to be paid as a monthly rent by the average family. The need for dwellings is felt in all classes ranging from the common laborer at, say \$25.00 per week, the shipbuilder at \$45.00 per week to the higher paid artisan at \$60.00 to \$100.00 per week. In order to provide suitable houses, it is plain that the rent or cost by the monthly payment plan must not be excessive to the average wage earner. The common laborer is essentially accustomed to the congested sections of the City where close proximity to the work, cheaper markets and lower rented flats are the attraction. He, therefore, can be eliminated for the time being, so that the rent that appears to be a reasonable one for other classes is probably less than \$50.00 a month.

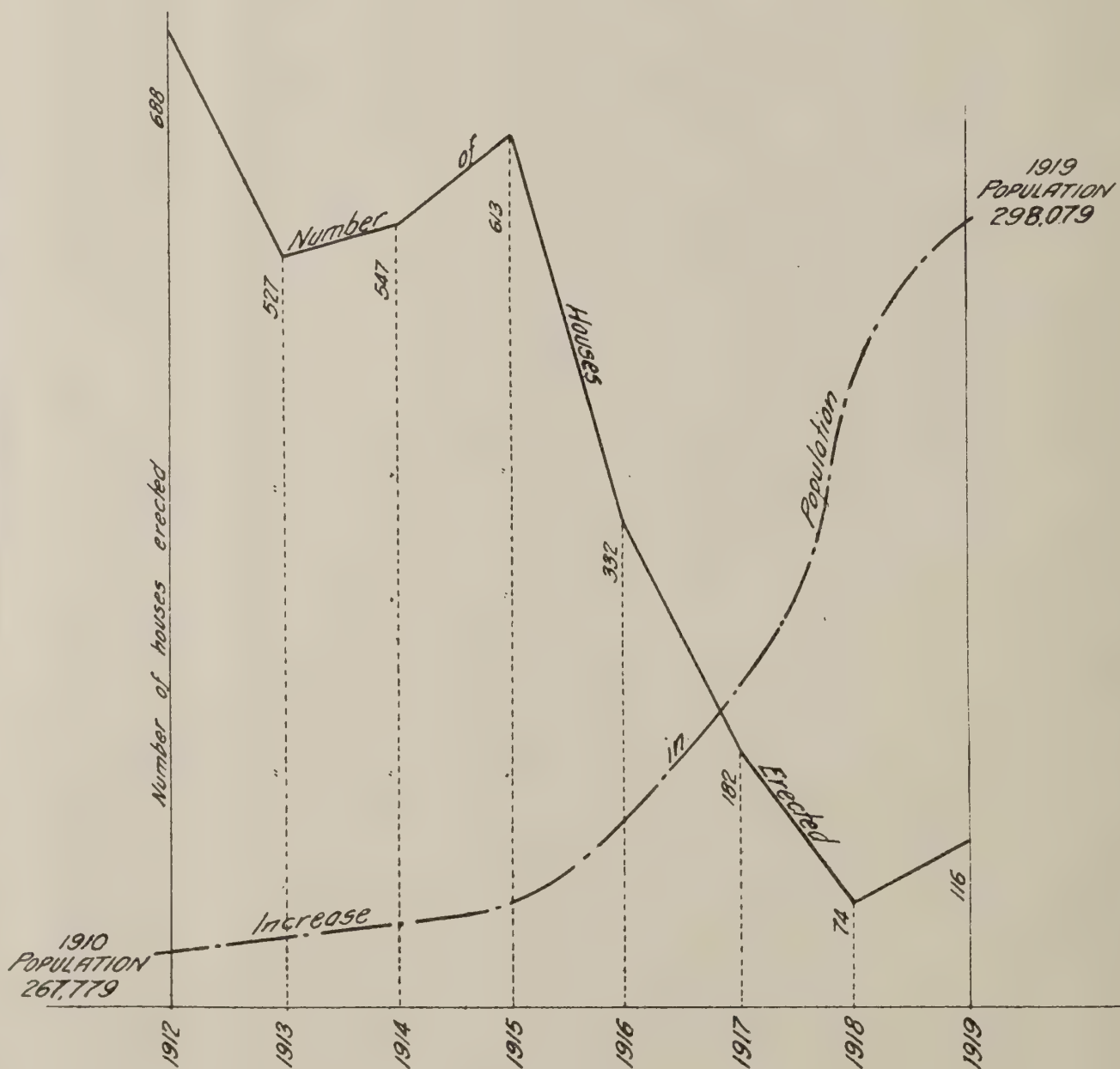
At present day cost of labor and material only a standardized house built en mass can be built for \$5,000. By constructing houses in large numbers, standardizing materials, methods and operations, costs are materially reduced. Lumber, brick, roofing, plumbing, heating and other building materials purchased in carload lots may be obtained at reduced prices. Repetition of the same work where standardized methods are used in the construction of the building, or whatever it may be, greatly reduces the cost and labor. For example, a steam shovel digging a hundred adjacent cellars will reduce the cost of excavation to a minimum. Your Board is of the opinion that by building houses on a wholesale basis, it would be practical to construct them for \$5,000 each, where if built in small numbers, house by house, as is usually the custom, the cost would be, as explained above, at least \$7,000 each.

It should be borne in mind that the location of the houses will have a strong influence upon the type of construction. The house that is principally to take care of industrial workers at a particular location would probably be most satisfactorily and economically constructed upon what is known as the Philadelphia plan, which is a continuous line of dwellings with party walls, as illustrated in Plan "A."

If the houses are constructed in a residential district it is highly desirable to take into consideration the individual idea of the prospective owners. This may be accomplished by the introduction of the separate single-family house, illustrated in Plan "B." or the two-family house shown in Plan "C." In all these types the floor plans and the interior installations, such as heating, plumbing and lighting, can in a large degree be

Diagram showing:—

Increase in population contrasted with the decrease in the construction of houses from 1912 to 1919 inclusive





standardized, while the elevations or the outward appearance can be varied sufficiently to meet the fancy of the most critical.

It is, of course, to be understood that even the single houses are to be built in numbers in the same vicinity so that the possibilities of standardization can be developed to the best advantage.

For any practical scheme of housing development, it is plain that the financing of the project should be controlled by men versed in that business, such as the banking houses; proper locations and sites are best decided upon by the real estate man; the designing and planning of the sites, houses and the environment should be done by engineers, architects and contractors; street layouts, water and sewer facilities are properly under the control of the City administration; from the view of the substantial public, we should interest such organizations as the Chamber of Commerce. For the above reasons, your Board suggests the following typical organization to be known as the Jersey City Housing Corporation:

It is proposed that the Corporation will comprise twenty-one directors who will be selected by the stockholders and bondholders as follows:

First, three from a group of six chosen by the financial interests of the City. These three men to be experts in financing.

Second, three from a group of six chosen by the real estate interests.

Third, three from a group of six chosen by the engineers, architects and contractors.

Fourth, three from a group of six chosen by the Mayor of Jersey City; these three men to be experts in public necessities.

Fifth, three from a group of six chosen by the Chamber of Commerce.

Sixth, three from a group of six chosen by a majority of bondholders.

Seventh, three from a group of six chosen by a majority of stockholders.

These directors will be elected by the stock and bond holders and each group will nominate one of their number as a member of the executive committee. The directors thus elected will form the policies and activities of the Corporation. Each group will be considered a standing committee on the subject with which they are familiar, and will act as advisors to the executive committee. The executive committee will select a manager, who will have active charge of the carrying on of the project. He will be empowered to employ the necessary assistants and be responsible to the executive committee for any changes in the corporation plans.

The number and type of houses to be built requires careful consideration. If it is decided to build accommodations for, say six hundred families, this can be done by building five hundred one-family houses on the Philadelphia plan at \$5,000 each, or an equivalent number of houses on the "four family per house" plan at \$4,000 per family, or by a number of both types, supplemented say with one hundred one-family six-room houses built on separate lots at an estimated cost of say \$6,000 each, the latter permitting individuality in taste and requirements.

The money to finance this proposition can be secured in the following manner:

First, \$1,500,000 in bonds of \$1,000 each bearing six per cent. interest.

Second, \$1,500,000 in stocks of \$100 shares bearing not more than seven per cent. interest.

Third, \$155,000 in participating certificates of \$50.00 each to be purchased by the home owners at the rate of two certificates for each \$1,000 cost of the home. The participating certificates will entitle the holders to vote the same as shareholders and receive the same benefits, the only exception being in the interest rates. When the Corporation ceases to function, such assets as remain when all proper charges are paid will be apportioned among these certificate holders. Each shareholder will have the right to nominate one house owner for each ten shares of stock owned.

### **Payment Plans**

There are certain expenses incurred when any project is carried on which must be included in the cost of the same. These costs are generally known as overheads:

First, investigation of prospective house owners.

Second, preliminary legal and engineering expenses.

Third, payment of interest, taxes and insurance prior to construction.

Fourth, interest on bonds.

Fifth, amortization or retirement of bonds.

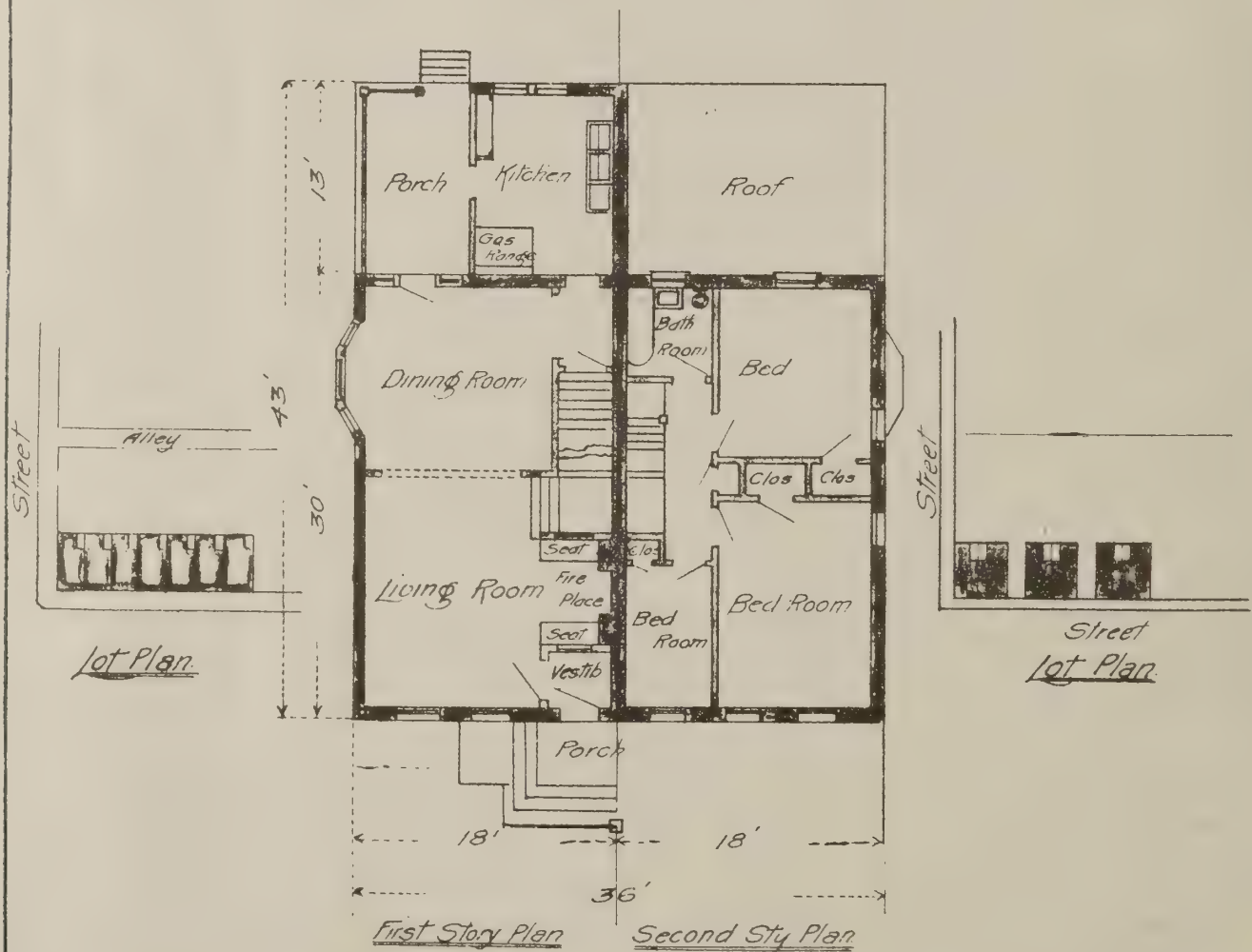
Sixth, administration charges, incurred principally by the office of the manager.

Seventh, payment of interest on outstanding stock, seven per cent.

PLAN A

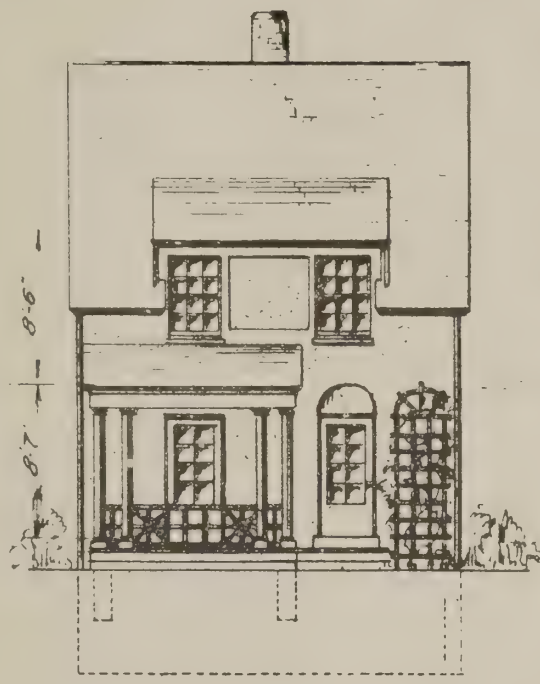


Front Elevation

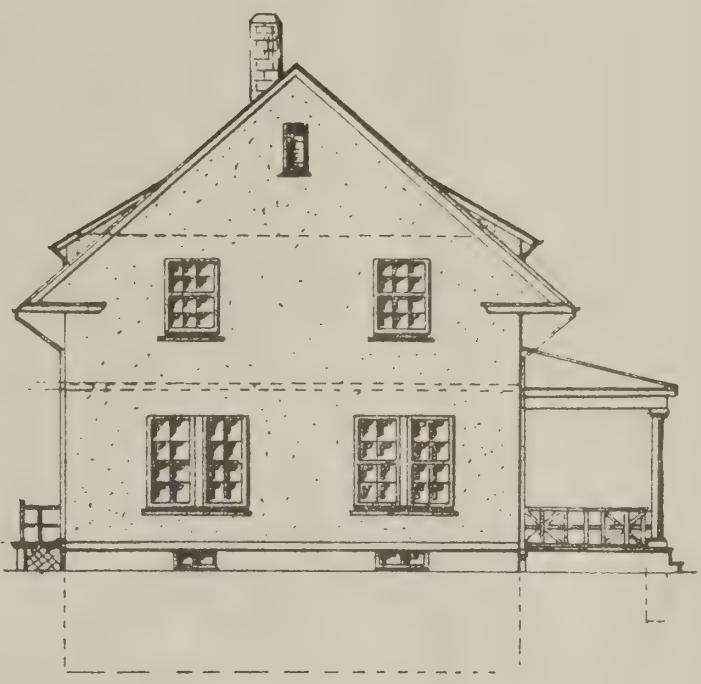




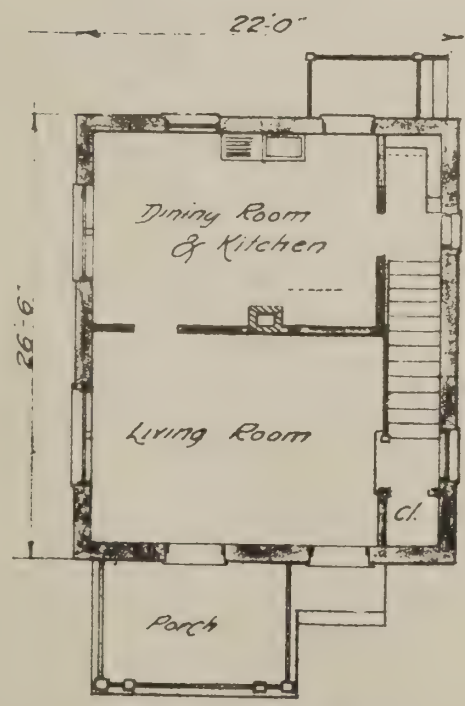
PLAN B



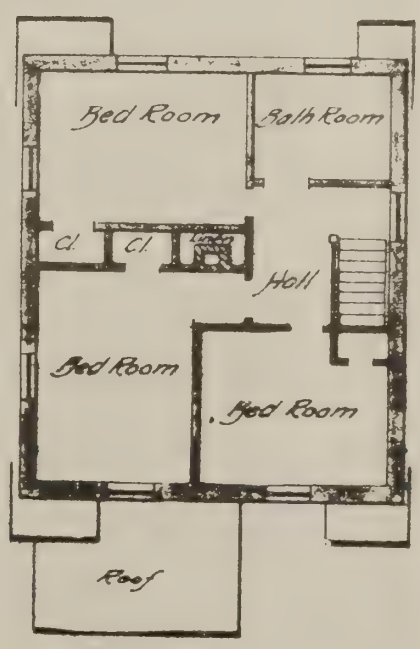
FRONT ELEVATION



SIDE ELEVATION



FIRST STORY PLAN

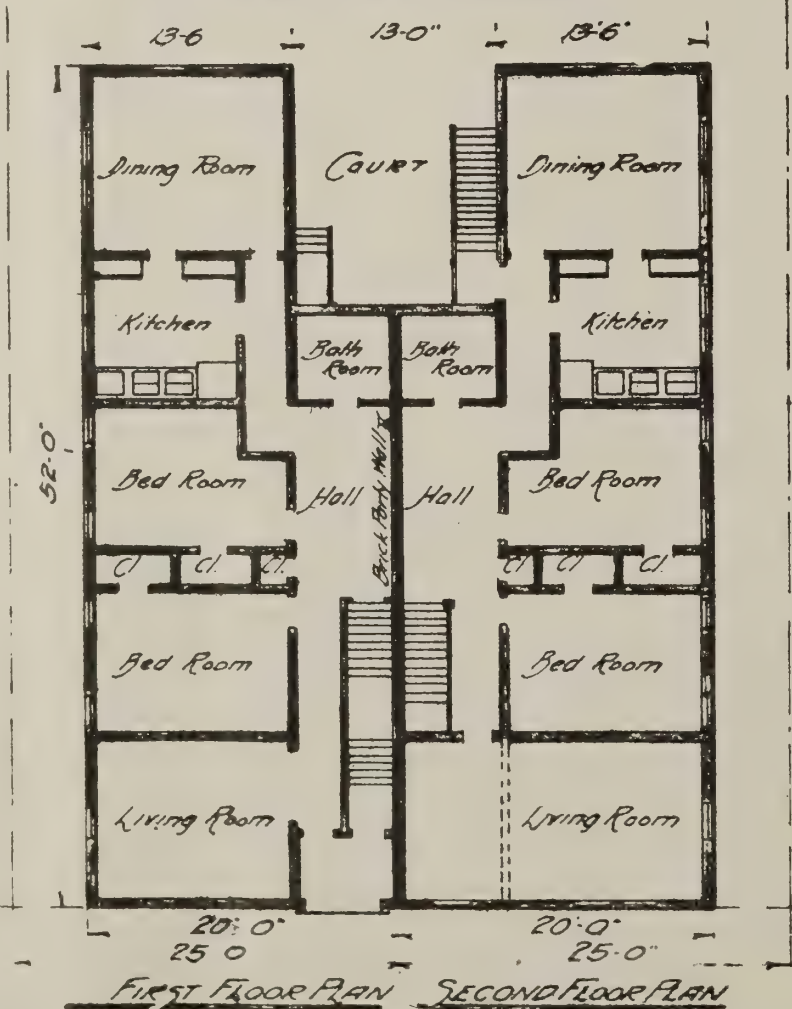


SECOND STORY PLAN

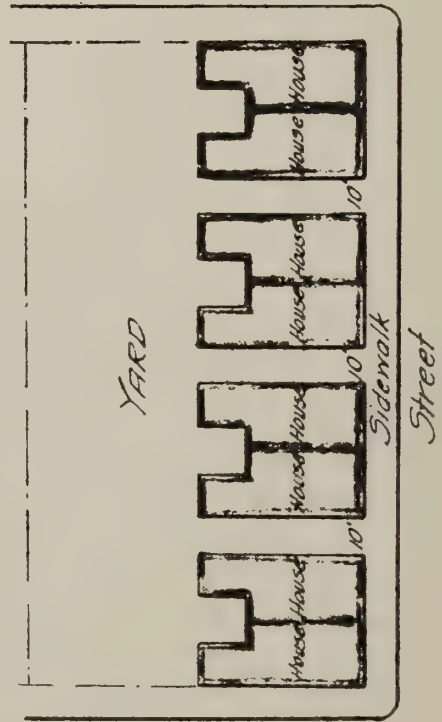
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FRONT ELEVATION



FIRST FLOOR PLAN    SECOND FLOOR PLAN



LOT PLAN



It is believed that the estimated cost of the homes proposed will cover the actual cost of construction plus the charges that have been mentioned. Three plans for the purchase of these houses will be provided:

The Partial Payment Plan.

The Part Payment Down, Partial Payment Plan.

The Outright Purchase Plan.

*The Partial Payment Plan.* The cost of construction with the addition of fixed charges and interest of six per cent. on the investment will be divided into monthly payments. These payments will be determined by the ability of the purchasers to pay, and in any case must be such an amount as will enable the complete payment for the house in not more than fifteen years. The payment should include an amount to take care of the taxes, fire and life insurance.

*Part Payment Down, Partial Payment Plan.* This plan is similar to the Partial Payment Plan with the exception that the prospective purchaser will make an initial payment in addition to the monthly payments. As in the Partial Payment Plan, the house must be completely paid for in not more than fifteen years. This plan should enable persons owning lots to build, as the real estate may be turned in as cash or collateral.

*Outright Purchase Plan.* The outright purchase plan requires an initial payment of twenty per cent. of the estimated cost and the final payment on completion of construction.

The Board proposes three types of houses.

The first plan is the Philadelphia type. This house will be party walled, and will have three rooms on the ground floor and three rooms and bath on the second floor. The cellar will extend under the whole house, except the kitchen, and will contain a hot air heating system. The house itself will be of simple and attractive construction. It is to be about 18 feet wide and 40 feet long with a front porch and a yard in the rear. All as shown on Plan "A."

The second type of house is to be in units that will house four families, two families on each floor. The construction will be of frame, except that the center wall will be made of brick, which will separate it into two families on each side. These houses will not only have the advantage of individuality and appearance, as they will be separated by a two-foot alleyway, but they will also be at least 20 per cent cheaper per family than the Philadelphia type. All as shown on Plan "C."

The third type is a single house to be of frame construction, on a lot and a half, that will allow for a driveway and a garage. It will also allow for six rooms and bath with elevations of varying and attractive character. All as shown on Plan "B."

### Life Insurance

For the purpose of aiding housing undertakings and to enable the home buyer in case of his death to protect his liability on a decreasing mortgage covering his dwelling, and also to permit the holder of the mortgage to insure the owner of the property for the amount of the mortgage or balance due, an insurance feature has been made a part of the housing organization.

This insurance is divided into two parts, viz:

Endowment Insurance.

Term Insurance.

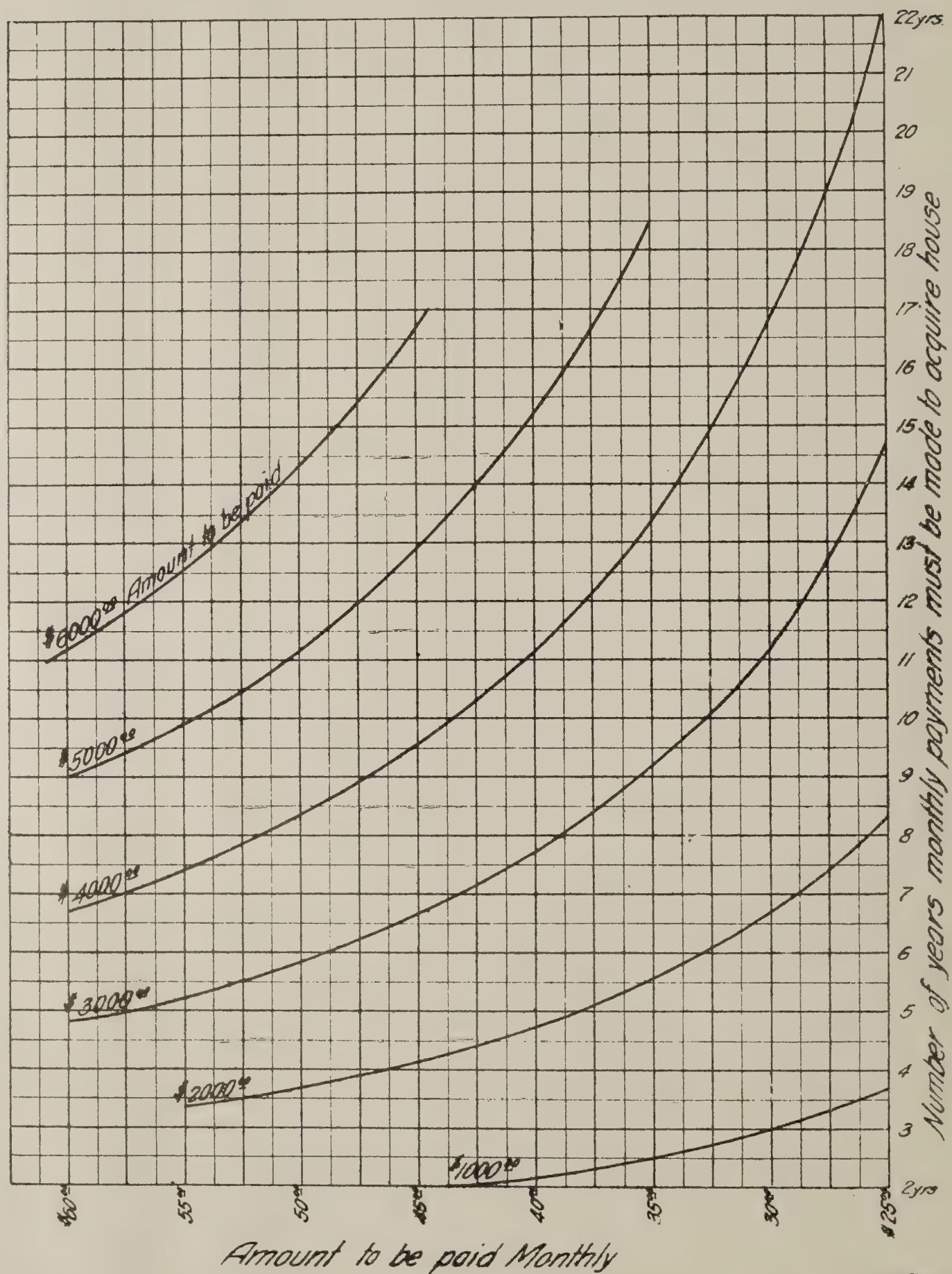
The total insurance will cover the entire indebtedness; the Term Insurance will decrease yearly as the mortgage or balance to be paid decreases. For every \$5,000, or part thereof, a \$1,000 Endowment Insurance is required.

*To Illustrate:* A home buyer at the age of 30 buys a house, leaving a balance to pay of \$5,000, which he proposes to pay in 15 years. To cover the indebtedness he takes out an endowment policy covering \$1,000 and term insurance covering the balance of \$4,000.

The endowment insurance premium at the age of 30 years is \$20.72 per \$1,000; the term insurance for \$4,000 at the age of 30 is \$8.80 per \$1,000, or \$35.20 for \$4,000, making a total for insurance of \$55.92 for the first year. The endowment premium remains constant throughout the fifteen years or \$20.72; the term insurance constantly decreases in amount as the balance to be paid is reduced, while the rate increases slightly with the age of the insured, so that in the fifteenth year the term insurance disappears and only endowment insurance is carried on after that for the benefit of the purchaser if he so desires.

The average total life insurance premium per annum for the fifteen-year period is approximately \$40.00 or \$3.33 per month.

TABLE SHOWING MONTHLY PAYMENTS REQUIRED TO PURCHASE HOUSE





The monthly payments on this \$5,000 house, to be paid for in fifteen years, would be as follows:

<i>Average Monthly Payments for Fifteen Years for \$5,000 House</i> (Including all overhead, except repairs and maintenance)		
	<i>Annual</i>	<i>Monthly</i>
Part Payment and Interest.....	\$494.60	\$41.22
Taxes.....	140.00	17.18
Water Rent.....	16.00	
Fire Insurance .....	10.00	
Endowment Insurance.....	20.72	
Average Term Insurance.....	19.50	
Total Payments (average).....		\$58.40

If the house cost \$7,000 it would be necessary to take out \$2,000 of Endowment Insurance and \$5,000 of Term Insurance.

If \$6,000 is the cost the Endowment Insurance would be \$2,000 and the Term Insurance \$4,000.

For a \$4,000 house the Endowment Insurance would be \$1,000 and the Term Insurance \$3,000.

*Table Showing Monthly Payments by Purchasers for Taxes, Fire Insurance and Water Supply*

<i>Value of House</i>	<i>Taxes</i>	<i>Insurance</i>		<i>Total Yearly</i>	<i>Total Monthly</i>
		<i>\$2.00 per \$1,000</i>	<i>Water</i>		
\$7,000	\$196.00	\$14.00	\$16.00	\$226.00	\$18.90
6,000	168.00	12.00	16.00	196.00	16.30
5,000	140.00	10.00	16.00	166.00	13.90
4,000	112.00	8.00	16.00	136.00	11.30

Practical execution of the proposed housing plan of the Board of Engineers has been undertaken by the Chamber of Commerce, who have had prepared a complete detailed plan for two two-family (attached) dwellings, with estimate of cost and bill of materials. Further steps leading to the organization of a housing company by the Chamber of Commerce on the lines indicated in this report are in progress, and it is hoped that actual construction of buildings will result therefrom in the near future. These plans are on file in the office of the Board of Engineers and can there be inspected by persons interested.

**Zoning**

In its preamble to this report your Board called attention to the necessity in the making of a comprehensive city plan for a careful study of the existing zoning regulations for Jersey City. Your Board has had no opportunity in the limited time given to it to go into this feature in detail. The existing Zoning Commission in Jersey City has done a very splendid service to the City in setting aside areas for commercial, residential and industrial development. The Board feels, however, that the adoption by your Commission of a comprehensive rail and waterfront industrial development plan, as outlined in this report, will of necessity call for some changes in the ultimate development of areas lying back of the terminals to be created by the carrying out of the plans suggested, for example: Should the west waterfront development at Droyer's Point, outlined by your Board, be carried through to its ultimate development it seems quite evident that the territory lying east of West Side Avenue and south of Audubon Avenue will eventually have to go into industrial use in order to provide sufficient industrial area to support the terminal suggested at this point. Other conditions of a similar character can be picked out all over the City. It would therefore be the idea of your Engineering Board that with this general development plan as a base the Zoning Commission reconsider its existing zoning regulations with the end in view of planning not for the present condition of the City but for its eventual industrial development. We feel that this is a matter which should receive very careful attention in connection with the development of a detailed city plan and we earnestly recommend it to your honorable body for consideration. Such a zoning of the City will undoubtedly be reflected upon land valuations and building activities.

**The Building Code**

The building code is a manual of regulations governing the construction of buildings within the various zones laid down upon the City map. Its requirements therefore in the greatest measure affect the cost and consequently the volume of building construction.

While the building code should in every manner safeguard the City by preventing the construction of flimsy unsafe buildings and keep the City among the highest in rank of safety from fire and other risk, it at the

same time should be so reasonable in its requirements, combining the best practice in construction with its regulations, that building construction may be stimulated.

It is recommended that an analysis be made of the existing code to determine whether modifications are possible consistent with existing laws, which would have the effect of stimulating building construction throughout the City, particularly also with a view to the requirements regulating the alteration of old buildings for dwelling and other purposes.

This work is far reaching in its effect and should therefore be thorough in its every detail.



# Passenger Transportation

The peculiar topography and situation of Jersey City and its neighboring communities, extending north and south on a narrow peninsula, with the Hudson River and New York Bay on the east side and Newark Bay and the Hackensack River on the west, makes passenger transportation a more or less complicated operation. Jersey City itself is topographically divided into two parts, lower Jersey City extending along the foot of the Heights with Hoboken adjoining on the north, both little above sea level, the central and westerly portions of the City extending over and along Jersey City Heights, the southerly extension of the Palisades, with Union Hill, West Hoboken and other communities on the north, Bayonne City extending southerly to Bergen Point.

A glance at the map of the City will make the difficulties of transportation apparent. The distance from Bergen Point to the northerly Jersey City line is about 9.2 miles. The distance from the southerly boundary between Jersey City and Bayonne to the northerly limit of Jersey City, at West Hoboken, is about 5.3 miles as the crow flies. The greatest distance east and west, that is, from the Hudson River to the westerly waterfront, is 3.6 miles. The distance from Bergen Point to Weehawken (42nd St. Ferry) is about 11 miles.

## North and South Transportation

Since the greatest extension of area and consequently population is north and south, the problem to provide adequate transportation for the people is mainly that of north and south rapid transit. The function of the transverse, or east and west, lines is to transport passengers to and from the waterfront and New York to connection with the north and south transportation lines and to distribute passengers through lower Jersey City. These east and west lines have given quite adequate service in the past. A re-routing of some of the downtown lines will give still better facilities, and these minor problems are discussed more fully below.

Through north and south rapid transportation, however, should be improved, and it is this phase of passenger transportation with which we are most concerned.

## Boulevard Subway

The Hudson and Manhattan tubes extend across through Jersey City with stations at Exchange Place, Grove Street and Summit Avenue, the first two in lower Jersey City, the latter station at the ridge of Jersey City Heights. The desirable solution of north and south traffic for the traveler would be a subway extending north and south along the Hudson County Boulevard, connecting with the Hudson and Manhattan tubes. This would directly connect the entire residential section of Jersey City Heights, Bayonne, Union Hill, West Hoboken, etc., with New York City. The construction of such a subway would result in enormous development of Jersey City and these adjacent communities; it would stimulate building, increase land values, rates would be higher and the income of the City greater. The construction of this subway was, therefore, the first problem considered by the Board of Engineers in its study of the transportation conditions.

The natural conditions for the construction of a Boulevard Subway are almost ideal. Located as it would be along the ridge of Jersey City's watershed, few obstacles would be encountered in the nature of intersecting sub-surface construction such as sewers, water mains of extreme dimensions, etc. Buildings also are well removed from the location of the subway and waterproofing present simple problems. The cut and cover method could be adopted almost throughout.

Unfortunately, however, the construction of such a subway even under these ideal conditions involves an expenditure of so large a sum, nearly \$40,000,000.00, as to make its construction impossible without placing a heavy burden upon the City for many years to come. Considered as a business proposition the income derived even from the largest volumes of passengers which can be reasonably expected to use it would not carry the interest, maintenance and amortization charges of such an undertaking. While it is true that the probable very great influx of population resulting from its construction would in time justify the expenditure, the City would be burdened with a heavy tax to carry the costs during this long period. The construction of a Boulevard Subway is, therefore, not recommended at this time. It should be deferred until its construction can be shown to be a sound business enterprise and, therefore, an attractive proposition for the investment of private capital, which it is not at this time.

Studying further the question of boulevard transportation, an elevated railroad structure was considered; this was also dismissed on account of excessive cost and because of unsightliness of structure.

## Boulevard Surface Lines

The immediate method which should be adopted for Boulevard passenger transportation is by means of surface lines. Like all other schemes, their installation must be based upon the question of whether the income derived from such a line would pay the maintenance, overhead and a reasonable return upon the investment.

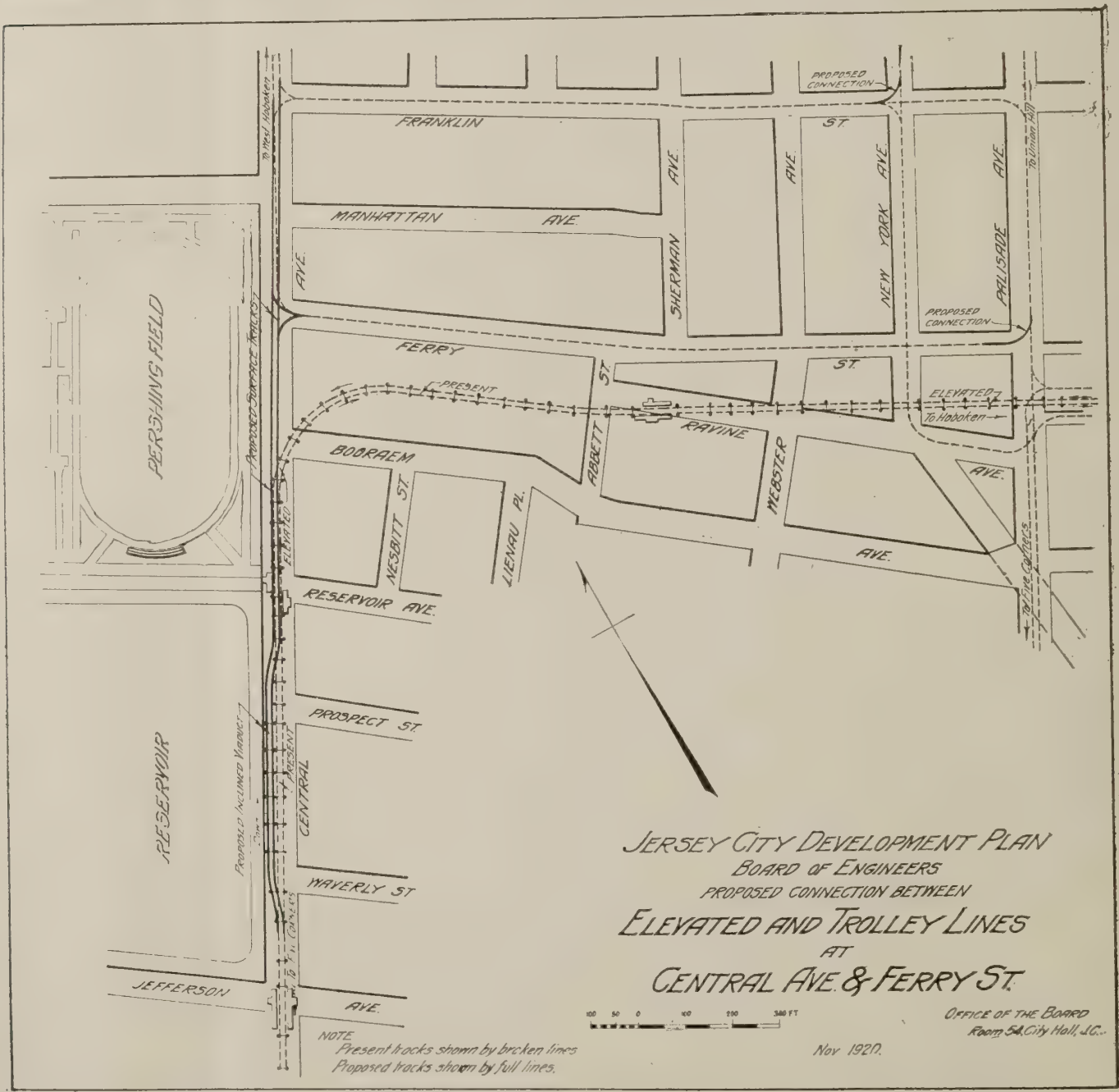
And it should be realized here and now that investors of capital do not deal in futures nowadays. Three types of surface transportation suggest themselves: the electric trolley railroad, the trackless trolley and the autobus, such as is used on Fifth Avenue, New York City.

The Boulevard is of ample width to accommodate a surface electric car line; this could be carried either through the center of the roadway or along the sides. The construction of a special type of double deck car would result in making this line attractive.

The trackless trolley system of cars for passenger traffic, while in use to some extent in foreign countries, is as yet practically untried in the United States. The system seems to present good features and possibilities and should be well investigated before final dismissal. Recent application for its installation upon the Boulevard was rejected by the Boulevard Commission.

**Boulevard Auto Omnibus Line**

Efficient and responsible autobus service, such as is operated along Fifth Avenue and Riverside Drive, New York City, seems a very desirable method of transportation along the Boulevard; the installation involves a considerable investment and high operating costs. It is very popular in New York and considered altogether desirable. Such service if decided upon should be placed in the hands of a responsible corporation by franchise











for exclusive operation over the Boulevard. No corporation would consider the investment of capital in an enterprise of this nature unless irresponsible jitney and other competition is removed. This statement applies equally to trolley and omnibus service or any other adequate responsible transportation service.

This was brought out very definitely in consultation with the Fifth Avenue Coach Company, operating the Fifth Avenue omnibus lines in New York City. The company plainly and emphatically stated that exclusion of jitney and other traffic would be the first condition insisted upon in considering a Boulevard omnibus service or any other kind of service anywhere.

**Other North and South Routes**

The construction of an elevated railroad was next considered as a means of rapid transit north and south, the route selected extending along Jackson Avenue to Old Bergen Road and southerly via the line of the old Dummy Railroad in Bayonne to Bergen Point; extending northerly along Monticello Avenue, Summit Avenue and Central Avenue, connecting with the present high speed surface line in Union Hill, thus creating a through rapid transit line from Bergen Point to Fort Lee and beyond.

This plan is also very costly and the unsightly elevated structure would undoubtedly meet with very great opposition on the part of adjacent property owners.

**Proposed Immediate Improvement of Through North and South Transportation**

Immediate improvement is necessary. This can in a great measure be provided by a reorganization of the present service, this involving some new construction work at a number of points. At the present time a trip from, say from the Greenville car barns to the 42nd Street Ferry, involves the use of at least two trolley lines. It has also been shown by traffic counts that there is a very large interchange of passengers between the Jackson Avenue Line and the Union Hill Line at Palisade Avenue.

It is the opinion of the Board of Engineers that through north and south lines are now necessary in Jersey City and could in effect be created by making a connection between the elevated structure and the surface lines at Pershing Field, as shown on page 36. This plan involves re-routing the Jackson Avenue Line over the present Union Hill route on the northbound trip. After reaching the elevated structure it would then run over the new connection through Ferry Street to Palisade Avenue, and thence along the Union Hill route; returning it would operate west through Franklin Street and through Central Avenue to the new connection, thence south on the elevated structure.

The plan minimizes the work required to accomplish the result intended. It involves new track connections at Central Avenue and Ferry Street, at Palisade Avenue and Ferry Street and at Palisade Avenue and Franklin Street. The double tracking of Central Avenue, between Ferry and Franklin Streets, would also permit use of this connection by the Summit Avenue Line. See plan on previous page.

The approximate cost of the project is \$115,000.00.

It is recommended that the creation of this new route be at once taken up with the Public Service Railway Company.

**The Horseshoe Section**

The time of the Board was too limited to make a complete traffic survey of the entire City. Such a survey was made, however, for the Horseshoe district to determine transportation conditions in that district.

Complaints to the effect that trolley service is inadequate to take care of employes engaged in the industrial plants of the Horseshoe District led to an exhaustive study of passenger transportation requirements and facilities. The complaints do not seem to be justified by the facts determined. To determine the conditions in this section of the City, lists of employes and their addresses were obtained from the larger firms located here, as follows:

1. Armour & Co., 324 17th Street.....	Employees	455
2. Brady Brass Co., 170 14th Street.....	"	131
3. Carscallen & Cassidy, 542 Henderson Street.....	"	20
4. Jersey City Stock Yards, 6th Street.....	"	151
5. Kiernan & Hughes, 348 9th Street.....	"	141
6. National Carbon Co., 580 Henderson St.....	"	562
7. Sanitation Corp., 12th and Monmouth Sts.....	"	67
8. Swift & Co., 154 9th Street.....	"	952
9. Torsion Balance Co., 147 8th Street.....	"	153

The study made covers nine plants, employing in the aggregate 2,632 people, and is considered typical of the entire section.

In order to portray the distribution of residences of these employes they are shown on the accompanying map by the "spot" method, wherein one dot represents the residence of one person. Originally the map was divided into areas 2,000 feet square, and the spots distributed over these squares in order to show relative density of the various sections. This map covers only the northerly portion of Hudson County.

For the sake of this study the "Horseshoe" section is considered as a unit, as the plants under investigation are spread over the entire area north of Sixth Street; considered this way, the trolley facilities afforded are the Pavonia Line to the Hudson City section, the lines operating on the elevated to the Heights and North Hudson towns, the Crosstown Line to Lafayette, and the Grove Line to Newark Avenue, to Hoboken, and by transfer to Weehawken and north Hudson. Therefore, considering the section as a whole, there are trolley routes affording outlet to all parts of the county. Taking the plants individually, it will be noted that they are scattered from that of Armour & Co., at the West Shore tracks and 17th Street, to the Jersey City Stock Yard at Sixth Street and the Hudson River. The majority of those studied are located within 600 feet of one of these trolley lines, the exceptions being Armour & Co. and the Sanitation Corporation.

Studying the "spot" map, it will be seen that the greatest density is right in the Horseshoe section itself, practically all of which can be considered as being within walking distance of the plants. There is also a large number (282) residing in the lower portion of Hoboken, and a study of the individual reports show that half of these work for the National Carbon Company and about one-quarter for Armour & Company. These plants being only about three-fifths of a mile from the center of this Hoboken section, it is safe to assume that a large proportion of those living here also walk to work, and would continue to do so even if direct transit facilities were offered. Summarizing, 48 per cent. of the employes live in the Horseshoe and approximately 11 per cent. live in Hoboken, making 59 per cent. of the employes who probably walk.

Considering the Hudson City section, we find that 324, or 12.3 per cent. of the total, live here. These persons have both the Pavonia Line and the Elevated lines to reach the Horseshoe section. For some plants this would mean a transfer to the Grove Line or else a walk, but any suggested new routes to the north would not help them.

The main consideration in this study is the facilities of travel for those residing in the northern end of the county. Taking these to include West Hoboken, Weehawken and towns to the north, we find only 137 persons, or 5.3 per cent. of the total employes. These are scattered all over the section with no concentration in any one locality, as a reference to the map will show. Even if this small number of persons would warrant a special service it would not be possible to so serve them because they are so widely distributed.

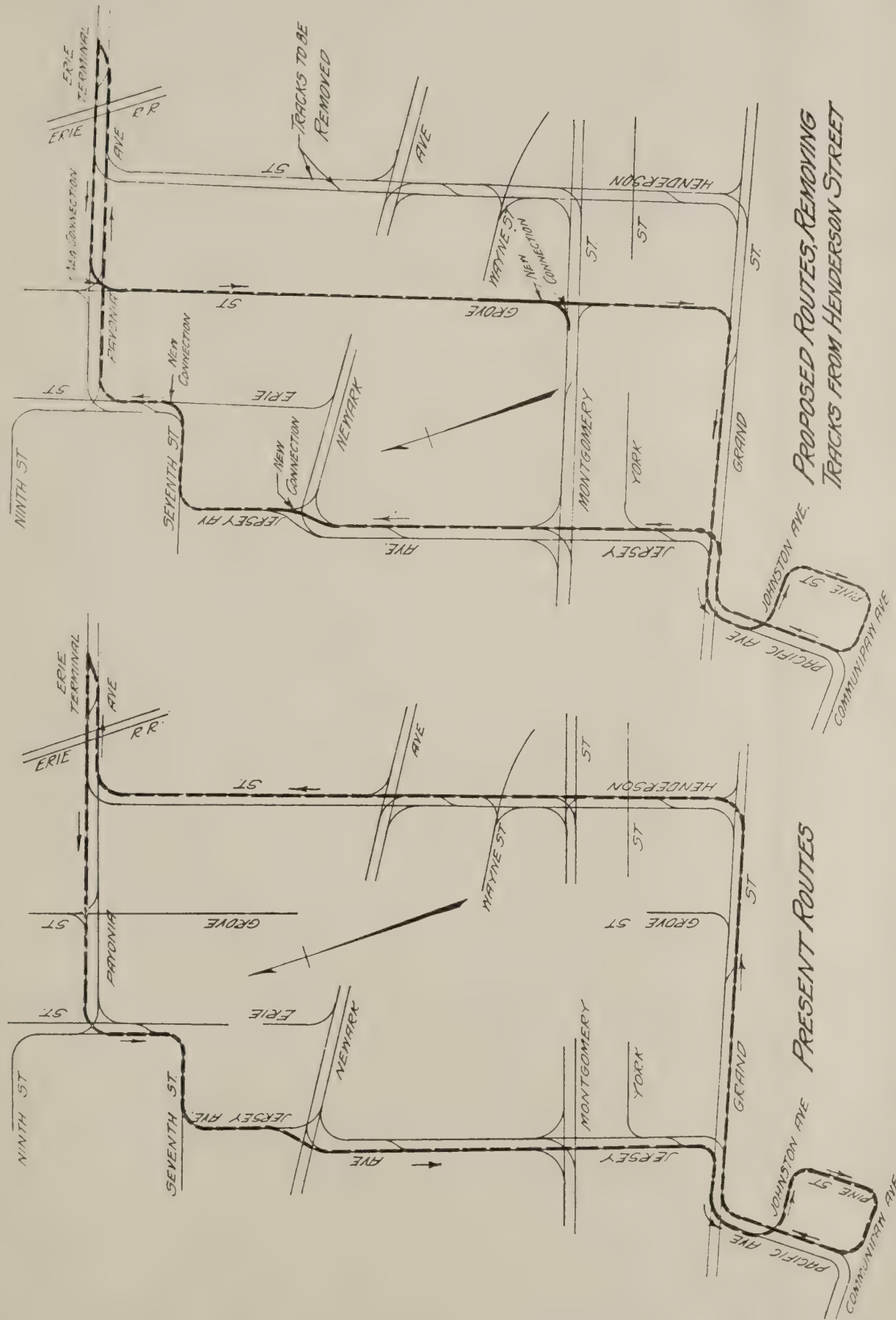
In discussions at the various plants it was endeavored to secure the views of the supervising force on the present trolley facilities. At Armour's it was stated that their location was poor from a transportation standpoint, that some men living on the Hill found it easier to walk to work than to ride, and that they would welcome an improvement. On the other hand, the men seen at the Brady Brass Co., Carscallen & Cassidy, Jersey City Stock Yards and Torsion Balance Co. said they had heard no complaints as to the facilities, and in some cases specifically state that they think they are adequate. Kiernan & Hughes are located directly on the Pavonia Line and would like to see increased service on that line; they state that employes living in Hoboken and Bergen Section of Jersey City have to use three cars to reach the plant, and they have trouble to hold them in service. However, as at present they only have one living in Hoboken, and apparently none in southern Jersey City, the demands for through service would be negligible. The National Carbon Co. also stated that they would welcome an increased service. In their case this would mean service principally from Hoboken, as 25 per cent. of the employes live there, while 35 per cent. live in the Horseshoe section and about 10 per cent. live in the Hudson City section. The Sanitation Corporation said they had no complaint as to transportation, except would like to see increased service on the Pavonia Line.

In the case of the Jersey City Stock Yards, the majority of men were asked their method of getting to work, and also to make suggestions. It was found that about 40 per cent. walk to work, about 15 per cent. use the Grove or Pavonia Line, and the balance were scattered. Their opinions seemed to be at great variance, one saying service on the Pavonia Line was unsatisfactory, while two others said they made "good connections." One said of the Grove Line, "Good service sometimes, long waits other times," while another rider on that line said, "Good service during the week, bad on Sundays, owing to crowded cars; reasonable fares." Two others living a short distance from the plant said, "Too much fare for the distance, so walked." Thus it seems that the employes themselves are not unanimous.

Considering all of the above data, the conclusions as to transportation facilities in this section are as follows:

1. That the section is served with trolley lines feeding all sections of the county, practically every point of which can be reached for a single fare or a single fare with a transfer.





RE-ROUTING OF SURFACE TROLLEY LINES IN LOWER JERSEY CITY

2. That in addition they are served by the Hudson Tubes from Summit Station, Exchange Place and Hoboken.

3. That because of the few people living in the northern end of the county (being only 5.3 per cent. of the total working in this section), and because of their being so scattered, the Board of Engineers would not be warranted in recommending that the Public Service Railway Co. build any extension for their accommodation, as it would not be able to show them enough business to make it pay.

4. That any possible re-routing of Hoboken lines to run them through the Horseshoe would be of little value, as the majority of employes would have to walk some distance to reach these lines at both ends, and it is very doubtful if these would ride at all.

5. Because of the character of the territory leading to the Hudson City section it is practically impossible to make any changes. The only change possible would be re-routing of the Pavonia Line through Grove and Erie Streets, and as the only ones benefited would be those working in the northern end of the Horseshoe, it would, considering the transportation as a whole, prove more of a detriment than a benefit.

### **Removal of Track from Henderson Street**

In connection with the new tunnel routes, the Board has recommended that Henderson Street be widened for its entire length and to have the trolley tracks removed. In case the trolley tracks are removed, the Public Service Corporation would be required to operate its cars in a somewhat different manner than at present. It seems to the Board that this could be accomplished in the following manner:

The present route of the Crosstown Line or from Erie Ferry via Pavonia Avenue, Erie Street, Seventh Street, Jersey Avenue, Grand Street, Pacific Avenue, Johnston Avenue, Pine Street and Communipaw Avenue; returning via Pacific Avenue, Grand Street, Henderson Street and Pavonia Avenue to Erie Ferry.

This operation could be reversed by starting at Erie Ferry and running via Pavonia Avenue, Grove Street, Grand Street, Pacific Avenue, Johnston Avenue, Pine Street and Communipaw Avenue; returning via Pacific Avenue, Grand Street, Jersey Avenue, Seventh Street, Erie Street and Pavonia Avenue to the Erie Ferry.

To alter this route as proposed, it would be required to make the following changes and additions to the track work: Single track connection at Pavonia Avenue and Grove Street; single track extension on Grove Street, from Wayne Street to Montgomery Street; a change of connection at Jersey Avenue and Newark Avenue to permit of northbound operation; and an additional connection at Seventh Street and Erie Street.

This change would also involve the Pavonia Line, reversing the operation as follows: From Pavonia Avenue, via Erie Street and Ninth Street on the westbound trip, and via Ninth Street, Monmouth Street, Seventh Street and Erie Street on the eastbound trip. This would involve new connections at Ninth Street and Monmouth Street, Ninth Street and Erie Street, and Erie Street and Pavonia Avenue.

The removal of track on Henderson Street would also alter operation of three other lines. The Greenville Line Loop Service at present operates through Jersey Avenue, Newark Avenue, Warren Street and Grand Street. The proposed route would be through Jersey Avenue, Newark Avenue, Grove Street and Grand Street. This operation would not necessarily have to be changed, but it is suggested to take advantage of the new Grove Street extension inasmuch as it would provide better service from Grove Street Tube than the present route.

The Montgomery Loop Service operates via Montgomery Street, Jersey Avenue, Newark Avenue, Grove Street, Wayne Street, Henderson Street and Montgomery Street. The new route suggested would be through Montgomery Street, Jersey Avenue, Newark Avenue, Grove Street and Montgomery Street.

The Henderson Line now operates around the Grove Street, Wayne Street and Henderson Street Loop. With this change it is proposed to run these cars through to the P. R. R. Ferry, omitting this Loop Service, which is used during non-rush hours.

### **General**

Passenger transportation in Hudson County should be considered in direct connection with and as a part of the articulation of the Metropolitan district. The City should, therefore, be alert in watching all transportation plans and projects suggested for the Metropolitan District.

Summit Avenue Station is nearer New York than Brooklyn, Staten Island or the Bronx. The overflow from Manhattan would come to Hudson County if facilities were in existence, the traffic undoubtedly



working along the lines of least resistance. New facilities will have to be provided if the New Jersey part of the Port of New York is to come into its own. A new era of development of the Metropolitan District has begun; the trend of affairs is westward across the Hudson to New Jersey. We have heard of a \$100,000,000 bridge across the Hudson River, the new Vehicular Tunnel is under way, and a monster passenger station may be erected by the Pennsylvania Railroad in the Hackensack Meadows. Electrification of all railroad transportation in the Metropolitan District is not far distant. Now is the time to look around, to grasp the opportunity so long withheld.

The big men connected with Transportation, Shipping and Railroad operations realize that the future of the Metropolitan District depends upon the development of the New Jersey portion; plans are now forming and maturing in their minds. Jersey City must wake up, look around, take stock of its great opportunity and plan to be a dominant factor in the things to come.

# Parks, Playgrounds and Recreation

In the past the subject of Parks and Playgrounds has not been seriously considered. Until very recent times most of the public parks were small and were the gift of landowners or wealthy citizens of more than average foresight. The idea of purchase of play space with public funds was considered wild, utopian, idealistic and impracticable. Recommendations of such expenditure caused storms of protest. When Central Park, New York, was purchased, there was talk of indicting those responsible, but today the benefits of Central Park are beyond computation and its community value could not be estimated. At Mulberry Bend, New York, breathing space was so sorely needed that the City has just spent millions to provide an open area in this congested district.

We do not believe it necessary in this era to point out the benefits to be derived by a city providing suitable Parks and Playgrounds; they are self-evident.

Through lack of proper open areas many children of American cities have been denied their right to grow big and strong. It took years to educate the public to the need of regulated play and recreation, but this accomplished, appropriations for the development of Parks and Playgrounds are demanded.

Jersey City needs more Parks and Playgrounds. Authorities differ as to the proportion of the City area which should be allotted for Parks and Playgrounds, but 5 per cent. of the city is the minimum that should be acquired for recreation purposes. Jersey City, with an area of 12,288 acres, should have at least 600 acres of Parks and Playgrounds; we now have half of this, of which a normal amount was purchased by the City Treasury. *Now is the time to acquire the balance.* Jersey City is limited in its growth; we have no outlying districts. The small areas now available will diminish as building goes on; and as the city becomes more congested property values are enhanced and the cost of acquiring property will increase. Delays are expensive.

Many of our Playgrounds are privately owned and have been loaned to the City to equip and maintain. There is imminent danger of sales of these lands for commercial development. All of these parcels are advantageously situated for their present use, and were developed through the urgent necessities of the environments. In most cases the owners would prefer to convey to the City and have the public benefits continued rather than sell to individuals who would utilize the property otherwise.

It is therefore recommended that these tracts be acquired by the City to insure to their users uninterrupted enjoyments of their benefits. Map showing present and proposed parks will be found folded in back cover.

## Parks

We owe a debt of gratitude to those whose wisdom and foresight evolved the Hudson County Park Commission and to those who composed that Commission, for the creation of West Side Park with its 208 acres, of which, as yet, but half is developed. This is a county institution, not a municipal playground, although centrally located in the city. It forms the nucleus of a park system for the city, and eliminates the necessity for the acquirement and maintenance of a similar park by the municipal authorities. Around it can be arranged the ideal park system of the large central park and numerous smaller parks articulated by a system of ornamental parkways and boulevards.

Locations are recommended for sites to be acquired which, together with the existent parks, will establish a park system comparable with any in this country. All of these are to be neighborhood parks in all that the name implies. Oases, attractive and refreshing to the city dweller, near enough to be worth the effort to visit and not far enough to disperse the benefits derived by distance of homeward travel.

An important feature is the development of a continuous hillside park, utilizing the precipitous eastern slope of Bergen Hill from Fairmount Avenue north to Suckley (County) Park at the City Line. The land involved is almost entirely useless for building purposes, but is most picturesque and would readily lend itself to artistic treatment. The sections at the rear of the City Hospital and Riverview Park, already developed, show the possibility of exceeding the beauty of Morningside Park and Riverside Park, similar hillslopes developed in Manhattan.

Co-operation between the municipality and the railroads in connection with the hillslope park plan would beautify the hillside at tunnel portals and convert the quarrylike open cuts to pleasing landscapes by judicious plantings and careful supervision. Within a short space of time benefits would accrue in favorable impressions upon the passing traveler in lieu of the prevalent criticism of our fair city.

## Playgrounds

Jersey City has in the past five years assumed the leadership in the country as far as Playgrounds and Recreation are concerned. This city was one of the first to have supervised play; to open the schools to com-





WEST SIDE PARK, JERSEY CITY



HILLSIDE DEVELOPMENT, MONTGOMERY PARK, SHOWING JERSEY CITY HOSPITAL



HILLSIDE DEVELOPMENT, BAYSIDE PARK, JERSEY CITY





WADING POOL, LAFAYETTE PARK, JERSEY CITY



ZABRISKIE PLAYGROUND, JERSEY CITY

munity work; to organize the industries for Play and Recreation, and one of the few cities to borrow vacant land from owners and equip as Playgrounds. Besides the many small Playgrounds thoroughly equipped, Jersey City has the finest Playground in the world in Pershing Field.

### **Pershing Field**

Visitors from all over come to see this wonderful field, which is laid out and constructed to accommodate all kinds of field and track contests as well as athletic games and sports.

Great credit is due to the members of the present City Commission, and especially to Commissioner A. Harry Moore, for the planning and successful completion of this monumental playground, which has brought Jersey City into the limelight in the world of athletic sports. In the conduct of cities it is, as in all walks of life, the excellence of features that attract favorable attention and make for the betterment of living that should be cultivated.

Many of the public schools have playgrounds, and, having considered the feasibility of placing all the playgrounds under the jurisdiction of one department, we would not recommend that this be done, as the school organization is separate and distinct from other departments of the City Government, and it would be inadvisable to make any change which would tend to engender conflict of authority. However, experience indicates that every school should have a playground commensurate with the seating capacity of the building.

### **Playgrounds and Parks in Rear of Building Lots**

The day is fast coming when the rear of building lots will be cleared of the unsightly wooden fences and sheds and the interior of every block become a pleasant resort for both children and parents. This is a matter in which the residents of each block must take the initiative.

Children must play, and they now play in the streets. Many cities have what are known as "Play Streets." These streets are closed to vehicular traffic during certain hours. How much better it would be to convert the interior of every block into a Playground or Park for community use and thus keep children off the streets and away from the dangers encountered thereon.

### **Parkways**

There are shown on the Park Plan certain streets which should be developed as Parkways, with islands through the center, planted with trees and shrubs and the sides lined with grass and spreading trees. These Parkways would connect and constitute an integral part of the Park System, greatly beautifying the city.

### **Bathing Beaches**

The finished plan of West Side Park shows a bathing beach on the Hackensack River, with suitable bath houses, etc., and the Droyer's Point Development also provides bathing beaches and all the necessary equipment. This feature of the Western Shore Development should not be neglected, as the need for bathing beaches will become more acute as industrial development absorbs the riparian rights. In the Parks and Playgrounds, wherever possible, provision should be made for children's wading pools, as the wading pools now constructed at Pershing Field, Lafayette Park and Zabriskie Park are the Mecca of children during the hot weather. In the larger parks outdoor swimming pools should be constructed, with ample provision for renewing the water at frequent intervals. Pools of this character have been deservedly popular in other cities.

We recommend that the property necessary to complete the Parks and Playgrounds System, as shown on the plan, be acquired as speedily as possible, and the property privately owned and publicly equipped be acquired immediately. We again emphasize *now is the time; delays are expensive.*

In the selection of locations for new Parks and Playgrounds the Board of Engineers has held numerous conferences with the Director of the Department of Parks and Public Property and has had his complete co-operation. The various locations suggested to him by public-spirited citizens, who are continuously working for new Parks, have been presented to the Board by the Director and careful consideration and study given them. When the time actually arrives to purchase property, the locations suggested may be changed; still, if an equal area within a block or two of that shown is selected the Parks and Playgrounds System will not suffer by the change.

### **Present Parks**

Columbia Park, Hudson County Boulevard and Winfield Avenue.

Ferris Park, Old Bergen Road and Danforth Avenue.

Bayside Park, Garfield Avenue and Van Nostrand Avenue.

Lafayette Park, Lafayette Street and Van Horne Street.

West Side Park, West Side Avenue and Belmont Avenue.



Jersey City Hospital Park, Baldwin Avenue and Montgomery Street.  
 Jersey City Hospital Hillside Park, Montgomery Street and Cornelison Avenue.  
 Montgomery Park, Montgomery Street and Mercedes Street.  
 Van Vorst Park, Jersey Avenue and Montgomery Street.  
 City Hall Park, Grove Street and Montgomery Street.  
 Paulus Hook Park, Washington Street and Grand Street.  
 Hamilton Park, Jersey Avenue and Eighth Street.  
 Riverview Park, Palisade Avenue and Bowers Street.  
 Leonard J. Gordon Park, Hudson Boulevard and Manhattan Avenue.  
 Pershing Field Park, Summit Avenue and Carlton.

#### **Park Triangles**

Pope Triangle, Baldwin Avenue and Summit Avenue.  
 Britt Triangle, Tonnele Avenue and Garrison Avenue.  
 Voorhees Quadrangle, Hudson Boulevard and Duncan Avenue.  
 Triangle at Hudson Boulevard and Newark Avenue.

#### **Parks on Private Property, Publicly Equipped**

Hancock Park, southeast corner Hancock Avenue and Congress Street.  
 North Street Park, east side of New York Avenue, between North Street and Paterson Plank Road.

#### **Present Playgrounds**

Bayside Park Playground, Garfield and Van Nostrand Avenues.  
 Bergen Avenue Playground, Bergen Avenue, between Myrtle and Grant.  
 West Side Park Playground, West Side and Harrison Avenues.  
 Lafayette Park Playground, Lafayette and Van Horne Streets.  
 Paulus Hook Playground, Washington and Grand Streets.  
 Montgomery Playground, Montgomery Street and Cornelison Avenue.



A CORNER OF PERSHING FIELD, JERSEY CITY



INDEPENDENCE DAY CELEBRATION, VAN VORST PARK, JERSEY CITY

Jersey City High School's Athletic Field, Montgomery and Florence Streets.  
 Zabriskie Playground, Mercer and Colgate Streets.  
 Mary Benson Playground, Newark Avenue and Merceles Street.  
 Fourteenth Street Playground, 14th Street and Erie Street.  
 Riverview Park Playground, Ogden Avenue and Griffith Street.  
 Pershing Field Playground, Central Avenue and Manhattan Street.

#### **Playgrounds on Private Property, Publicly Equipped**

Union Street Playground, Union Street near West Side Avenue.  
 St. Paul's Playground, north side St. Paul's Avenue, between Huron and Bevan.  
 National Carbon Playground, southwest corner Henderson and 14th Streets.  
 Grove Street Playground, north side of Grove Street, between 16th and 17th Streets.  
 Coles Street Playground, north side of 14th Street, between Coles and Monmouth Streets.  
 Mallory Avenue Playground, Mallory and Ege Avenues.  
 Marion Playground, Broadway, Romaine Avenue.  
 Crane Field, Merritt Street and Old Bergen Road.  
 American Legion Field, Bergen Avenue and Stegman Street.  
 Dales Avenue Playground, Dales Avenue and Broadway.

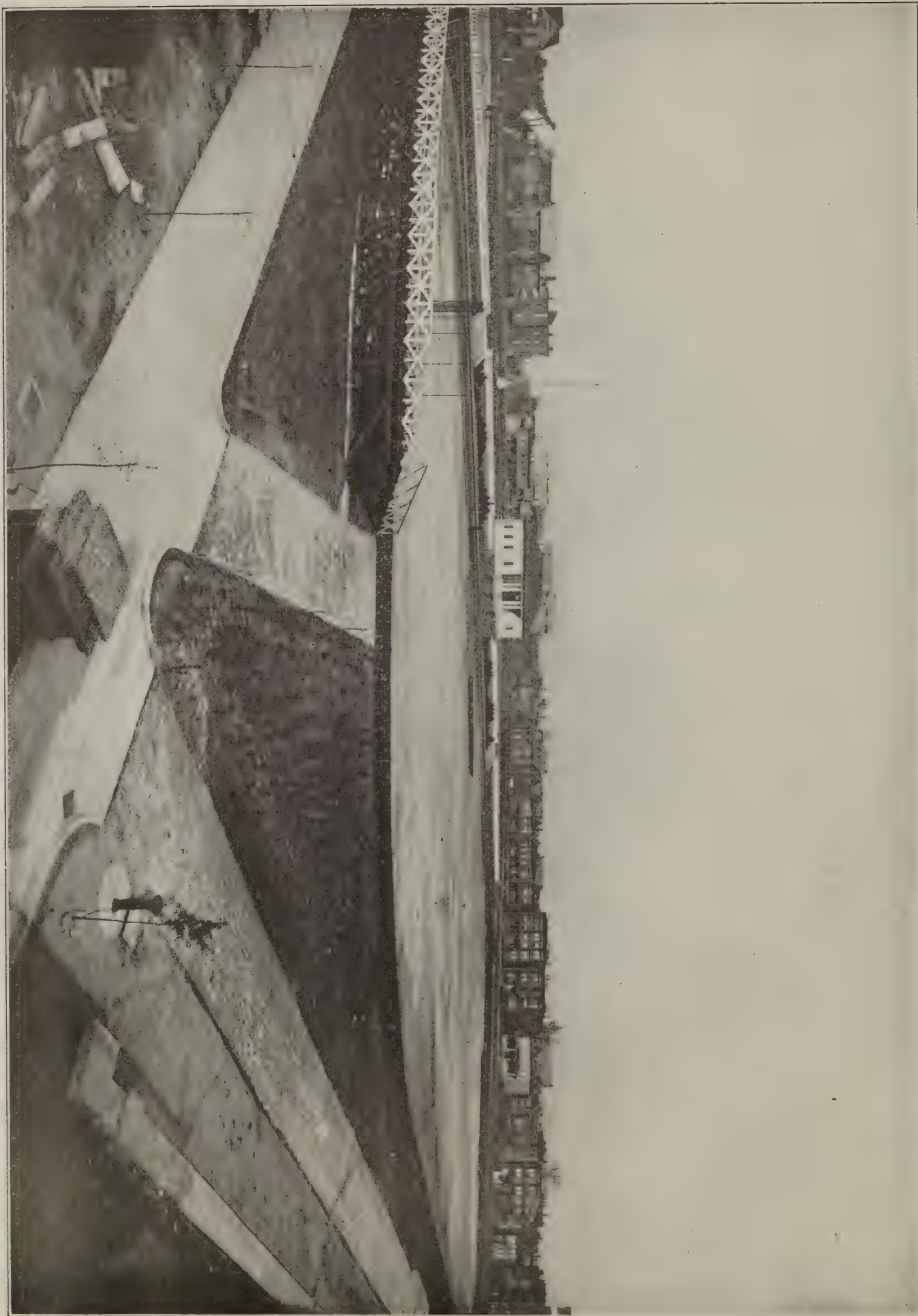
#### **Schools with Playgrounds**

No. 2, Erie Street.	No. 24, Virginia Avenue.
No. 4, Eighth Street.	No. 27, Graham Street.
No. 5, Zabriskie Street.	No. 29, Rose Avenue.
No. 6, Central Avenue.	No. 30, Seaview Avenue.
No. 11, Bergen Square.	No. 31, St. Paul's Avenue.
No. 15, Van Cleef Street.	No. 32, Coles Street.
No. 18, Storms Avenue.	No. 33, Union Street.
No. 21, Twelfth Street	No. 35, Sip Avenue.
No. 22, Halladay Street.	





PERSHING FIELD, JERSEY CITY



PERSHING FIELD, JERSEY CITY



### **Proposed Parks**

Between Gates, Seaview, Boulevard, Newark Bay.  
Between Boulevard, Fowler, Stevens.  
Eastern League Park, between Audubon, Bayview, West Side Avenue.  
Between Virginia Avenue, N. J. C. R. R., Jackson, Bergen.  
Between Ege, Virginia, Mallory, Bennett.  
Between Clinton, Communipaw, Monticello Jackson.  
Between Communipaw, Harrison, Crescent.  
Between Communipaw, Whiton, Pine.  
Hillside Park, between Summit, Academy, Mill Road, Cornelison.  
Between Montgomery, Gregory, Henderson.  
Between Newark Avenue, Grove, Pennsylvania Railroad.  
Between Newark Avenue, Pavonia, Chestnut.  
Between Newark Avenue, First, Coles.  
Between Bay, 1st, Barrow, Grove.  
Hillside Park, Trenton Street to Congress Street.  
Between Bleecker, North Liberty, Columbia Terrace.  
Between Congress, Graham, Boulevard, Summit.  
Suckley Park (county).

### **Proposed Parkways**

Winfield Avenue, Garfield to Boulevard.  
Garfield Avenue, Merritt Street to Bayview.  
Wegman Parkway, Boulevard to Garfield Avenue.  
Bayview Avenue, Garfield to Arlington.  
Arlington Avenue, Bayview to Communipaw.  
Park Avenue, Harrison, Clifton Place.  
Baldwin Avenue, Clifton Place, Pavonia Avenue.  
Jersey Avenue, York to Eighth Street.  
Pavonia Avenue, West Hamilton Place to Boulevard.  
Palisade Avenue, Pavonia to Plank Road.  
Paterson Plank Road, Palisade to Boulevard.  
Hudson County Boulevard.

### **Proposed Playgrounds**

Merritt Street, Wheeler, Thompson, Avenue B.  
Danforth, Cator, Rose Avenue.  
McAdoo, Warner, Jackson, Parnell Place.  
Boulevard, Bergen, Audubon.  
Orient, Kearny, Ocean, Rose.  
Virginia, Forrest, Jackson, Bergen (rear of Palace).  
Ege, Virginia, Mallory.  
Grand, Arlington, Bramhall.  
Caven Point Avenue, Halladay, Pacific.  
Colden, Bright, Jersey, Varick, Monmouth.  
Morgan, Steuben, Washington, Warren.  
Fourth, 5th, Monmouth, Coles.  
Mercer, Vroom, Tvers, Jordan.  
South Side Broadway, between Van Wagenen and Romaine.  
Logan, Broadway, Dales, Freeman.  
St. Paul's Avenue, Tunnel Street, Boulevard, Bevan Street.  
East Side Jersey Avenue, between 13th and 14th Streets.  
North Side Henderson Street between 13th and 14th Streets.  
Griffith, Ogden Avenue, Palisade.  
Bleecker, North, Liberty, Columbia Terrace.  
Lexington, Roosevelt, Mallory, Bennett.

## Garbage and Ash Removal

Garbage and ashes are at the present time collected and hauled by horse teams to dumps located at various points throughout the city. While in former years there was much undeveloped territory throughout the city which necessitated filling, these dumping areas are now practically filled up and the city faces the necessity of determining upon a method and means for the future disposal of garbage and ashes.

The westerly waterfront presents the best solution of the locations for dumping this material, and definite areas must there be determined upon now. It is pointed out here that fill dumping by private individuals upon any west waterfront lands of the city should be prevented.

As is pointed out in the discussion of harbor improvements, the quantity of material to be dredged by the City in construction of its West Waterfront improvements is far in excess of the quantity of material required for reclamation of the West Waterfront lands. Every yard of this excess material will have to be removed by the City at its own expense and every yard of filling, other than dredged material, dumped upon these lands further increases the excess material to be removed.

Private dumping, therefore, should be either entirely forbidden or only permitted upon suitable compensation to the City.

### **Analysis and Report on Refuse and Garbage Disposal in Jersey City**

According to the last census (1920), Jersey City had a population of 298,079. At present the City is divided into three districts for garbage and ash collection purposes, as follows:

*District No. 1*, including territory bounded by Holy Name Cemetery and Stuyvesant Avenue on the north; Cornelison Avenue, Commercial Street, Garfield Avenue and Central Railroad of New Jersey on the east; Morris Canal on the south and the Hackensack River on the west.

*District No. 2* comprises all that portion of the City lying east of the Morris Canal, Cornelison Avenue and Palisade Avenue.

*District No. 3* is bounded by the City Line on the north, New Jersey Junction Railroad on the east; Holy Name Cemetery and Stuyvesant Avenue on the south and the Hackensack River on the west.

The districts are indicated on the map accompanying this report, folded in back cover. Each district is further divided into three sub-districts, each of which sub-districts is cleaned twice a week.

The approximate area of each collection district is as follows:

District No. 1, 4.322 square miles

District No. 2, 2.718 square miles

District No. 3, 2.686 square miles

The work of collection is now done by contract, and the material is hauled to dumps by horse teams. The total number of teams employed for this purpose average 20 per day during the summer months and 30 to 40 per day during the winter months.

The present dumps are located at the following points, and are indicated on the accompanying plan:



METHOD OF STREET GARBAGE COLLECTION



- 1—West of Duffield Avenue and between Newark Avenue and Howell Street.
- 2—West of N. Y. S. & W. R. R. and between Erie Railroad and the County Road.
- 3—East of Garfield Avenue, at foot of Bayview Avenue.
- 4—On the east and west sides of Pacific Avenue between Forrest Street and Carteret Avenue.
- 5—At the South Cove lying between Henderson Street and Jersey Avenue and south of the

Morris Canal.

With the possible exception of Location No. 2, these sites have already been utilized nearly to their capacity. This is especially true in the case of Dumps Nos. 4 and 5, where the material is piled to a considerable height above the adjoining street grades. Sites Nos. 1 and 3 can be utilized for but a short time longer.

This analysis has, therefore, been based on the assumption that the existing dumps have been filled to capacity and that the time has already arrived when additional sites for disposal must be provided. Inspection of the City shows that the only remaining available space is the territory along the west waterfront lying between the southerly City Line and the Holy Name Cemetery.

According to the city records, during 1919 approximately 302,851 cubic yards of material were removed. This was distributed among the different collection districts approximately as follows:

<i>District No.</i>	<i>Maximum Daily Quantity Removed</i>	<i>Total Quantity Removed During Year</i>
1	103 loads	19,135 loads
2	112 "	13,788 "
3	107 "	15,700 "
Totals	322 loads	48,623 loads

In addition to the above regular collections, there was removed 488 loads during what is known as "Clean-up Period," the size of each load being approximately 6 1-6 cubic yards. There is no separation of any of the various classes of materials, wet garbage being mixed in with the ashes, papers, tin cans and other rubbish.

The present cost of collection, covering the period from March 8, 1919, to November 30, 1920, is \$268,000, or, at the rate of \$160,800 per year. This brings the present cost per cubic yards for collection and disposal to about 54 cents per cubic yard.

In studying the problem for methods of handling the waste material, considering the longer hauls involved, consideration was first given that by auto truck and trailer, for it is obvious, for instance, that in the case of an auto truck with a ten cubic yard body, each five cubic yard trailer would add 50 per cent. to its total carrying capacity.

At this point it would be well to call attention to the fact that the present New Jersey Laws (1918 Amendment to the Motor Vehicle Law) prohibit the operation of more than one trailer or semi-trailer with a motor vehicle. According to the present laws, the maximum rate of speed for commercial vehicles and tractors equipped wholly or in part with solid rubber tires, including the weight of same and the load thereon, is 16 miles per hour for weights of from four tons to six tons; 14 miles per hour for weights of from six to 10 tons, and 10 miles per hour for loads of from 10 to 15 tons. This act also provides for the following weights:

*Gross Wheel Loads in Pounds for Commercial Vehicles, Trailers and Tractors Equipped with  
Tires of a Given Size and Diameter*

Size of Tires	Single or Dual	Diameter of Wheel and Load in Pounds—							
		30"	32"	33"	34"	36"	38"	40"	42"
2"	Single	1,000	1,067	1,100	1,133	1,200	1,267	1,333	1,400
2½"	"	1,250	1,333	1,375	1,416	1,500	1,583	1,667	1,750
3"	"	1,500	1,600	1,650	1,700	1,800	1,900	2,000	2,100
3½"	"	1,750	1,867	1,925	1,983	2,100	2,217	2,333	2,450
4"	"	2,000	2,133	2,200	2,267	2,400	2,533	2,667	2,800
5"	"	2,500	2,667	2,750	2,833	3,000	3,167	3,333	3,500
6"	"	3,000	3,200	3,300	3,400	3,600	3,800	4,000	4,200

The weights for trailers are the same as for motor trucks or tractors.

From the above it is evident that in order to secure the greatest efficiency and economy in handling of the material in question, modification of the present law will have to be secured whereby municipalities or contractors engaged by municipalities will be permitted to operate trailers up to not less than three with each truck or



METHOD OF STREET COLLECTION



LOADED TRAILERS READY FOR HAUL TO DUMP



tractor for the specific purpose in view. It is upon the assumption that such legislation will be obtained that this estimate has been prepared.

Considering District No. 1, the present dump being located on the extreme easterly edge of the district, the change in location of the dump to the extreme westerly edge should involve no appreciable difference in the total haul required, and the work of disposal in this district should, therefore, proceed as at present except for the change in location of disposal site. Teams, dump wagons and an organization have, therefore, been provided to continue in this district as at present.

In the case of Districts Nos. 2 and 3, however, the distances from the present dumps to the tract lying between Marcy Avenue and the Hackensack River and between Communipaw Avenue and the Holy Name Cemetery is roughly 3 1-4 miles in each case, or a round trip haul of 6 1-2 miles, which represents the approximate average excess haul over the present average haul if the material is to be disposed of at the location outlined. In these cases, therefore, it has been assumed that the tractors would haul the trailer type of collection wagons in trains of three from assembling points located at the presents dumps Nos. 2 and 5 respectively. A side dumping type of trailer would be used equipped with solid rubber tires and provided with detachable wagon tongue. These would be drawn by teams through the streets for collection purposes as at present. Stables and garages would have to be provided at each assembling point for housing teams and tractors and for repairs to the latter. Trailer storage would, of course, be in an open yard. Short ramps would be provided at each assembling terminal for the purpose of unloading the tractor body from the trailers, two of the latter constituting a full load for the former. Teamsters would deliver loaded trailers at this terminal and depart with empties for another load, the loaded trailers being coupled in trains of three. The tractors would deliver the empties from the disposal dump to the yard and haul away the loaded trains.

The detailed analysis of this method of hauling follows:

*District No. 1*

*Time Studies—*

Total maximum material to be removed per day—103 loads, 635 cubic yards  
Capacity per wagon, 5 cubic yards  
Trips per wagon per day, 10  
Capacity per wagon per day, 50 cubic yards  
Wagons required, 13  
Total including 10 per cent. spare equipment, 15

*Equipment required—*

15 5-cubic-yard bottom dump wagons  
15 teams  
15 sets double harness

*Maintenance—*

Wagons—300 wagon miles at approximately 2c.....\$ 6.00  
15 teams at \$4.00 per day..... 60.00

*Total Investment—*

15 5-cubic-yard bottom dump wagons at \$800.00 .....\$12,000  
15 teams at \$800.00..... 12,000  
15 set double harness at \$135.00..... 2,025  
1 stable for 30 horses..... 21,500

Total.....\$47,525

*Fixed Charges—*

Interest on \$47,525 at 8 per cent.....\$ 3,802  
Taxes at \$30.97 per M..... 1,472  
Insurance at 4 per cent. on \$47,525..... 1,901  
Depreciation on wagons, 10 per cent. on \$12,000..... 1,200  
Depreciation on teams, 15 per cent. on \$12,000..... 1,800  
Depreciation on harness, 15 per cent. on \$2,025..... 304  
Depreciation on buildings, 3 per cent. on \$21,500..... 645

Total per year.....\$11,124  
Total per working day, \$35.54



TRAILERS DISCHARGING LOAD ON DUMP



TRAIN OF TRAILERS COMING FROM DUMP



*Cost of Operation—*

Superintendent (approximately one-third of total) .....	\$ 5.00
Clerk and Timekeeper (approximately one-third of total) .....	1.50
13 teamsters at \$5.20 .....	67.60
13 collectors at \$4.80 .....	62.40
2 stablemen at \$4.80 .....	9.60
2 watchmen at stables at \$4.80 .....	9.60
3 laborers at dump at \$4.80 .....	14.40
1 foreman at dump at \$5.60 .....	5.60
Total .....	<hr/> \$175.70

*Summary of Daily Costs—*

Fixed charges .....	\$ 35.54
Operating costs .....	175.70
Maintenance costs .....	66.00
Total per year, \$86,776.12 .....	<hr/> \$277.24
Total material handled per year, 110,004 cubic yards	
Average cost per cubic yard, 73c.	

It must be borne in mind, however, that the outfit which must be provided to care for maximum daily requirements has a capacity of 635 cubic yards per day and that when working to this capacity the cost per cubic yard is reduced to 44c. as against the above average of 73c. The cost of 44c. per cubic yard when the plant is working to capacity should be used for comparison with the present actual average cost of collection and disposal of 54c. per cubic yard over the entire city.

*Districts 2 and 3*

*Time Studies*

*Collection—*

Time required per load, 45 minutes  
Loads per wagon per day, 10  
Yardage per load, 5  
Yardage per wagon per day, 50  
Total yardage to be handled per district per day, 69  
Teams actually required in each district, 14

*Disposal—*

Hauling 3 1-4 miles .....	25 minutes
Return 3 1-4 miles .....	20 "
Dumping .....	10 "
Coupling and uncoupling .....	15 "

Total time per round trip .....	70 minutes
Total trips per tractor per day, 7	

*Equipment—*

Tractors 10 cubic yard bodies  
Trailers 5 cubic yard bodies

*Operating Units—*

1 tractor (10 yard body) .....	10 cubic yards
3 trailers (5 yard body) .....	15 " "

Total capacity per train .....	25 cubic yards
Trips per train per day .....	7

Capacity per train per day .....

175 cubic yards
-----------------

Material to be hauled per day, 690 cubic yards  
Tractor trains required in each district, 4  
Reserve equipment in two districts—1 tractor, 6 trailers, 4 teams.

*Total equipment required—Districts 2 and 3—*

9 tractors  
58 trailers (including six spares)  
30 teams (including four spares)  
30 sets double harness (including four spares)

*Wage Scale—*

Superintendent of stables, equipment and collection.....	\$16.00 per day
Tractor drivers.....	.75 per hour
Foremen at dump.....	.70 " "
Teamsters.....	.65 " "
Trainmen.....	.65 " "
Collectors.....	.60 " "
Stablemen.....	.60 " "
Laborers at dump.....	.60 " "
Watchmen at stables.....	.60 " "
Clerk and timekeeper.....	5.00 per day

*Daily Mileage—*

Tractors—46 miles per day  
Trailers—25 miles per day (approximate average)

*Maintenance Cost*

<i>Tractors—</i>	<i>Trailers—</i>
Gas and oil.....15c. per mile	Oil and grease.....1c. per mile
Tires.....10c. " "	Tires.....2c. " "
Repairs.....8c. " "	Repairs.....2c. " "
Total.....33c. per mile	Total.....5c. per mile

*Teams and Harness—*

\$4.00 per day

*Unit Investment Costs*

Tractors with 10 yard bodies.....	\$7,000 each
Trailers, drop frame, side dump type.....	2,200 "
Teams.....	800 "
Harness.....	135 "

*Interest, Depreciation and Insurance Rates*

Interest.....	8 per cent. per year
Depreciation on tractors.....	20 " "
Depreciation on trailers.....	10 " "
Depreciation on teams and harness.....	15 " "
Depreciation on buildings.....	3 " "
Insurance (total premiums averaged over entire).....	4 " "

*Total Investment*

9 tractors with 10 cubic yard bodies at \$7,000.....	\$ 63,000
58 trailers with 5 cubic yard bodies at \$2,200.....	127,600
30 teams at \$800.00.....	24,000
30 sets double harness at \$135.00.....	4,050
2 stables for 30 horses each at \$21,000.....	42,000
1 garage for 5 tractors (District No. 2).....	4,500
1 garage for 4 tractors (District No. 3).....	4,000
2 ramps for loading tractor bodies.....	5,000

Total investment exclusive of real estate.....\$274,150

*Fixed Charges*

Interest on \$274,150 at 8 per cent.....	\$21,932
Taxes at \$30.97 per thousand.....	8,490
Insurance, 4 per cent. on \$274,150.....	10,966



Depreciation on tractors, 20 per cent. on \$63,000 .....	12,600
“ trailers, 10 per cent. on \$127,600 .....	12,760
“ teams and harness, 15 per cent on \$28,050 .....	4,208
“ buildings, 3 per cent. on \$50,500 .....	1,515
<hr/>	
Total per year .....	\$72,471
Total per working day .....	\$231.54

#### *Cost of Operation*

1 Superintendent (approximately two thirds of total) .....	\$11.00	per day
1 Clerk and Timekeeper (approximately two-thirds of total) .....	3.50	“
8 Tractor Drivers at \$6.00 .....	48.00	“
8 Trainmen at \$5.20 .....	41.60	“
28 Teamsters at \$5.20 .....	145.60	“
28 Collectors at \$4.80 .....	134.40	“
4 Stablemen at \$4.80 .....	19.20	“
5 Laborers at dump at \$4.80 .....	24.00	“
1 Foreman at dump at \$5.60 .....	5.60	“
4 Watchmen at stables at \$4.80 .....	19.20	“
<hr/>		
Total .....	\$452.10	“

#### *Maintenance*

368 tractor miles at 33c. ....	\$121.44	per day
1,450 trailer miles at 5c. ....	72.50	“
30 teams at \$4.00 per day .....	120.00	“
Buildings, including light, water, etc. ....	10.00	“
<hr/>		
Total .....	\$323.94	“

#### *Summary of Daily Costs*

Fixed charges .....	\$231.54
Operating labor costs .....	452.10
Maintenance costs .....	323.94
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Total per working day .....	\$1,007.58
Total per working year .....	315,372.84
Total material handled per year (cu. yds.) .....	183,848
Average cost per cubic yard .....	\$1.72

Again it must be noted that the equipment which must be provided to care for maximum requirements is capable of handling 1,380 cubic yards per day, and when working to capacity the cost per cubic yard for collection and disposal is only 73c. per cubic yard, and this figure should govern for comparison with the present average cost of 54c. per cubic yard. In other words, the entire equipment has a capacity per yard of more than double the total amount now being collected. It is more than likely that whatever equipment is not required for collection of waste materials during the period of minimum output would be used for other purposes which would therefore stand their share of the expense of maintenance and operation of this surplus equipment. In considering the same problem in Hoboken, it was planned to have the city haul not only the house collections with the equipment, but street sweepings and ashes and other waste materials from manufacturing plants as well, so that the average daily output of waste material in this city more nearly approximated the maximum, thus insuring a more even distribution of the collection over the entire year and reducing the amount of idle equipment to a minimum. The population of Hoboken is approximately 69,000, while that of Jersey City is close to 300,000, or nearly four and one-half times as much. On the other hand, Hoboken figured on moving 150,000 cubic yards of material per year, whereas Jersey City has figured on handling only 300,000 cubic yards, so that in proportion to its size the average per capita output of waste materials estimated in Jersey City is smaller than for Hoboken, where the other sources have been considered.

Another point that has not been considered is the credit that should properly be applied to the above estimated cost figures, which represent the net value of the salvage from each dump and which, although small, should not be omitted from consideration. In the City of Newark, with a population of 414,216 the revenue

received for the privilege of salvaging the city dumps is about \$400.00 per month, or at the rate of approximately \$1.00 per month per thousand of population. It will probably be impossible to secure bids at this time under present fluctuation in the scrap market prices for more than month-to-month periods, but applying the same rate to Jersey City there would result a net credit of \$300.00 per month, or \$3,600.00 per year, which sum distributed against the total of 302,851 cubic yards of material to be handled would represent a credit of approximately 1.2c. per cubic yard. In addition to the payment of this monthly sum for the scavenger privilege the scavenger contractor is obliged to maintain the dump and roadways over same, so that the city is thus relieved of this expense. In the case of Jersey City this would amount in our estimate to \$15,525 per year, or about 5.1c. per cubic yard. The total saving to the city per cubic yard would therefore amount to about 6.3c.

The amount of revenue received by Newark for salvaging its dumps is exclusive of the revenue accruing from the sale of its wet garbage. This is collected separately over a section of the city representing approximately 65 per cent. of its total population. The revenue derived from its sale is roughly \$12,000 per year. The actual amount per ton received varies considerably, it being based on a sliding scale and amounting to eight and one-half times the market price of pork per ton garbage. It is delivered to the piggery by the city and feeds about 2,000 pigs. Thus it will seem that a population of about 269,000 people supplies sufficient garbage to return the city a revenue of \$12,000 per year, or at the rate of about \$50.00 per thousand per year. Applying this rate to Jersey City it will thus be seen that separation of the wet garbage from the other material and separate collection of same could be made to bring in an additional revenue of roughly \$14,900 per year, or a further net reduction in the average cost of collection of nearly 5c. per cubic yard.

The following table shows the resulting estimated average costs after the salvage credits have been applied:

	Dist. 1	Dist. 2-3
Estimated average cost of collection and disposal per cubic yard, not considering salvage .....	\$0.73	\$1.72
Total credit due to salvage (exclusive of wet garbage) .....	0.063	0.063
Net estimated cost to city per cubic yard.....	0.667	1.657
Estimated additional salvage credit if wet garbage is separated and utilized to feed pigs.....	0.050	0.050
Resulting average cost per cubic yard.....	0.617	1.607

It would seem that the above figures are fair for application to the Jersey City problem, since the

amounts received have been reduced to a per capita basis and wet garbage has been considered separately in the case of Newark and at the present time is not separated in Jersey City and therefore does not affect the value of the dump for other salvage purposes. It is probable that the trend of the times, in so far as the high cost of living is concerned, is largely responsible for the comparatively small amount paid for the scavenger privilege. In other words, the householder is being paid for papers alone prices ranging from \$1.00 to \$2.00 per hundred pounds, and the private collector will call at the house and cart them away. The same thing is true for old bottles and metals, the rates paid being correspondingly high, so that much material that formerly found its way into the city dump through the garbage and refuse collection now is carefully saved and sold by individual householders.

In studying the problem of disposal in Jersey City, consideration was given the possibility of handling any part of it to advantage by cars over the lines of Public Service Railway Company. The comparatively short haul, however, together with the greatly increased investment for equipment, track connections required and terminal loading facilities made it obvious that such a method was not economical and would result in a higher cost..

The Bonner Rail-Wagon System evolved by Colonel Bonner, wherein wagons used for collections are loaded bodily upon specially designed electric railway car bodies, hauled to the dumps over railway tracks and returned to the central assembling terminal, presents desirable features and is worthy of study in connection with the establishment of a plant. Here again exclusive investment for track connections, terminal facilities and the track at the dump, which must be constantly shifted as the dump is widened, so that it always extends along the edge of the dump to permit unloading of the material without rehandling, must be guarded against.

In the case of the dump located at the County Road, for example, it would require the construction of a mile of track with the necessary turnouts over the County Road and Manhattan Street in order to reach the nearest existing track located on Summit Avenue, of which distance that from Tonnele Avenue to the Boulevard would be on quite a heavy grade. To reach the present tracks on Newark Avenue from the same dump by way of the County Road and Tonnele Avenue direct would require the construction of about 7,000 feet of track with the necessary turnouts and would also probably involve the reconstruction of two bridges.



It would, therefore, seem that whenever it becomes necessary to dispose of the refuse material at other locations than at present, it would be decidedly to the City's advantage to organize and equip a Department of Refuse and Garbage Collection of its own for the purpose in accordance with the method outlined in this report, and take bids for the scavenger privilege at the dumps, there being very little question as to the ability of the City to effect a considerable saving to the taxpayer by so doing. As a matter of fact, the unit disposal costs should actually be somewhat less than has been figured, due to the fact that if the proposition is organized as a municipal undertaking the investment would be free from taxes and in addition the City should be able to finance the scheme by a bond issue which would net the investor 6 per cent., whereas private capital would have to figure on both the tax item and the higher interest rate as well. Elimination of items included above for taxes, and reduction of the interest rate to 6 per cent., would reduce the total fixed charges by the following amounts:

Taxes .....	\$ 9,962
Interest .....	6,434
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Total .....	\$16,396

Assuming, on the other hand, that real estate, which has not been included in the above figures, would represent a total investment of \$100,000, this amount at 6 per cent. would represent a fixed charge of only \$6,000 per year. Therefore, considering the matter as a municipal undertaking and including the above amount for real estate, there would still result a lower cost per cubic yard than the figures shown in this report computed on the basis of a private undertaking.

In the event that the city authorities and the various manufacturers cannot reach a satisfactory agreement providing for the handling and disposal of their ashes and other refuse material by such a municipal garbage collection department as has been recommended in this report, it would undoubtedly be to their mutual advantage to organize a co-operative collection system of their own, purchasing their own equipment and charging individual manufacturers for this service in proportion to the amount of material hauled, in other words, service at cost. Complete data is not available at this time as to the total output from this source, nor as to the cost of handling same per cubic yard or ton. However, it is a fact that it is costing some manufacturers as high as \$5.00 per ton to dispose of their waste material, and many are paying from \$1.00 to \$2.00 per ton for this service. This possibility should be given careful consideration on the part of the various manufacturers interested, as there is little question of their ability to considerably reduce their expense on this item.

In conclusion, if the foregoing analysis is sound, it appears that the City could organize its own garbage collection department and that the average gross cost of collection and disposal would be 73c. per cubic yard in District No. 1 and \$1.72 in Districts Nos. 2 and 3. It also appears that if advantage is taken of salvage credits and saving due to separate collection of wet garbage and utilization of same for establishing a piggery, these costs would be reduced to 62c. and \$1.61 respectively, and that if the surplus equipment which must be provided to take care of the comparatively short period of maximum residential production of waste material is used to haul ashes and waste material from municipal plants so that the entire normal plant is working to capacity all of the time, there would result a further reduction in these figures to 44c. and 73c. per cubic yard respectively, and this in spite of the greatly increased haul which the new location of dump involves. Compared with these figures is the present average cost over the entire city of collection and disposal of 54c. per cubic yard with its comparatively short haul. It also appears that the present dumping sites, either now are or are rapidly becoming a nuisance and a menace to public health and the method outlined in this report not only eliminates this undesirable feature but places the material at points where it is needed to develop the land in the territory in question.

Another feature not previously mentioned is the fact that the State Highway Commission is expected to construct what has been referred to as a Rotary Highway, roughly paralleling the Hackensack River and passing practically through the center of the land considered in this report as a site of disposal. Much fill will be required and assuming that a minimum of 50c. per cubic yard will be paid for such material for roadway fill (a very conservative estimate), it will easily be appreciated that the City could very materially reduce even the above minimum cost of collection and disposal by selling its waste material to the State Highway contractors for roadway fill. This should be true during a period of at least several years. With the City collecting ashes from the majority of industrial plants it should also be able to dispose of considerable cinders, especially the hard coal product, to contractors for use in construction work requiring cinder concrete.

**Removal of Ashes and Refuse from Industrial Plants**

It will be noted from the foregoing that the equipment necessary to take care of the maximum requirements for garbage and ash removal is capable of handling quantities much larger than the average. This sur-

plus equipment could be used for the removal of ashes, garbage and other refuse from industrial plants, who at the present time are paying from \$1.25 to \$2.15 per cubic yard for this service. Even though the City contracted for the removal of this refuse for a price as low as 60c. or 70c. per cubic yard the profit would still provide a substantial offset to the initial cost of the equipment needed by the City and its maintenance. A further substantial gain to the City would be in the utilization, as mentioned above, of this refuse material as a fill for the proposed Belt Line Railroad and the Rotary Highway along the west waterfront from Bayonne line to Broadway and later for the filling of the Morris Canal. If the City carries out these improvements and has to purchase fill the cost will certainly be not less than 50c. per cubic yard and if this item is set up to the credit of the garbage and ash removal department of the City, it will as a matter of fact be actually making money out of the removal of its own ashes and refuse rather than have it a heavy financial burden as under existing conditions.

At the suggestion of the Board of Engineers the Jersey City Chamber of Commerce submitted this plan for a public garbage and ash removal equipment to the industrial plants of the City in the shape of a referendum. Out of some 200 concerns voting there was practically a unanimous approval of the idea of the City holding its own equipment and more than 100 concerns expressed themselves as willing to immediately enter into a contract with the City for the removal of their garbage and refuse so there can be no doubt in the minds of the Board that should the City decide to proceed with this plan it would have no trouble in keeping its equipment active at all times of the year.



# Steam Railroads

Synopsis of the Railroad Situation.

Reduction of Railroad Occupancy of the Hudson River Waterfront.

Proposed Belt Line Railroad.

The Fairmount Terminal.

## Synopsis of the Railroad Situation

The existing congested condition of New York Harbor is in greatest measure due to the railroad occupancy of the largest portion of its most important waterfront, the New Jersey shore of New York Bay and the Hudson River. Practically the entire New Jersey shore, of the harbor from Constable Hook to Hoboken and much of the waterfront to the north of Hoboken is either owned, occupied or under the domination of one or more of the trunk line railroads crossing New Jersey to tidewater.

The Hudson River waterfront of Jersey City is with the exception of several insignificant piers, aggregating about one per cent. of the City's magnificent stretch of five miles of priceless waterfront, occupied by the railroad yards of the Central Railroad of New Jersey, the Pennsylvania, Erie, Lehigh Valley and D. L. & W. Railroads.

This railroad occupancy has prevented the development of this, the most important waterfront of New York Harbor, for the accommodation of maritime commerce and industrial establishments and has in fact stunted and retarded the general development of the City of Jersey City. Here should have been located New York City, or rather New Jersey City, for the westerly shore of the Hudson presents that facility for direct connection to the great hinterland impossible in New York, particularly Manhattan Island.

A general review of the causes leading to this railroad domination will aid in determining how to remove it, how to cast off this grip of steel at the throat of the City, which has stifled its development for half a century.



LOADING STEAMERS FROM OPEN AND COVERED RAILROAD LIGHTERS

### Cause and Effect of Railroad Occupancy of the Waterfront

The fundamental cause of the congestion in the harbor and what is in effect the railroad confiscation of the New Jersey shore is the determination for decades by New York City to concentrate within itself and mainly upon Manhattan Island the enormous commerce of the Port of New York.

Almost the entire harbor machinery, so to speak, has been developed for the purpose of transferring merchandise and commodities to the Island of Manhattan. Long Island with its Brooklyn and East River developments, it is true, receive some share of the commerce but are to be considered only as further means to accomplish this trans-shipment to and from Manhattan.

Since nearly all the great trunk line railroads reaching tidewater, with the exception of the New York Central Railroad and the N. Y., N. H. & H. R. R., are located upon the New Jersey shore of the Hudson River, the water barrier to Manhattan, it becomes necessary to ferry or lighter across to Manhattan Island the merchandise and commodities destined there as well as imports and exports from the west. This ferry or lighterage system has resulted in railroad occupancy of almost the entire lower Hudson River and East River waterfront of Manhattan Island from the Battery to Canal street and the entire Jersey City shore and to the north and south thereof. The piers located along the lower portion of the Hudson River and East River waterfront are given up almost entirely to the receipt of railroad freight, there delivered from the New Jersey railroad yards for distribution to the trans-atlantic or coastwise steamers or to the manufacturers or merchants, or received at these piers for trans-shipment to the various trunk lines located upon the Jersey shore.



LIGHTERAGE CAR-FLOAT

### UNNECESSARY DUPLICATION OF RAILROAD EQUIPMENT

Each railroad in competition with the others maintains for this purpose a large fleet of tugs, lighters, railroad car-floats, derricks and other appliances and each trunk line maintains a great railroad terminal on the New Jersey shore for this lighterage business. Much unnecessary duplication of plant, waterfront occupation and cost results because no joint or union lighterage terminals exist. The lighterage to and from the New Jersey shore is constant day and night. The transportation by horse and motor truck along the lower west side of Manhattan to the steamship lines and between railroad and steamship piers causes a constant congestion of traffic, very great delays and consequent high cost of transfer to and from the shipper.

This railroad occupancy of the waterfront of Manhattan and of the New Jersey shore is the main reason for lack of pier space in the port.

The problem of removing the railroad occupancy along the Hudson River waterfront, thereby releasing these lands for their proper use, the accommodation of sea-going vessels at piers properly equipped and of sufficient capacity, is one of railroad co-ordination. Freight, the ultimate destination of which is a point other than New York City, should never reach or pass through Jersey City or Manhattan. Trans-atlantic and coastwise





RAILROAD OCCUPATION ON THE NEW JERSEY SIDE OF THE HUDSON RIVER

freight should, as far as possible, be loaded directly to vessels on the New Jersey side of the Hudson River where direct rail connection exists or can be made.

If the railroads could be so co-ordinated that freight is intercepted somewhere west of Jersey City, adjacent to Newark Bay, the Passaic and Hackensack Rivers, classified there and made up into carload and train-load lots, trans-atlantic freight shipper to and from waterfront terminals to be established here and along the Hudson River, the remainder shipped directly to its ultimate destination, avoiding Manhattan, the lighterage across the Hudson River would be confined to express package freight transported by the passenger steamships and commodities and foodstuffs intended for use in New York City only. Lighterage would thus be greatly reduced and would not require the great extent of waterfront, piers and railroad yards now necessary in Jersey City to accomplish it, consequently releasing such waterfront for its proper purpose, the berthing of trans-atlantic and coastwise vessels at piers of adequate capacity, reducing cost of handling and consequently the terminal charges of the harbor. Such new utilization could be made by the railroads themselves or jointly with



LOADING FREIGHT INTO CARS ON FLOAT

the municipalities and would turn the present system of railroad yards, maintained at very great expense, into modern steamship and business developments along the Jersey City waterfront, a source of revenue both to the railroads and the community at large.

#### **Execution of the Plan of Reorganization**

The practical execution of this plan is difficult but the obstacles encountered are not insurmountable. If it can be demonstrated to the railroad companies that the proposed plan is economically sound, that is, that it would so materially reduce their operating expenses as to warrant its adoption as good business, it is logical to suppose then that the realization of the plan would be seriously considered by the railroads. The railroads realize the necessity for reorganization and a unification of plant and operation. The time is ripe to get them together to consider the ways and means of accomplishment of the plan.

Assuming for the moment that the economic soundness can be proven, and investigations seem to prove it, it then becomes necessary to either so harmonize the various railroads that the freight may be interchanged,



classified, made up into carload lots and handled jointly through union freight stations, union waterfront and union lighterage terminals, or to compel such joint use, forcing thereby the abandonment of duplicate plants, the needless maintenance and operation of which increases the freight rates of the railroads and causes the congestion in the North River. The power to compel such rational use of such interstate public utility would seem to be within the authority of the Interstate Commerce Commission.

In fact it seems clearly within the duty of this Commission to compel such modification of method of railroad operation as here indicated; since the multiplication of plant and equipment by the trunk lines, each of which maintains and operates in competition with the others a large fleet of tugs, lighters, carfloats, float-bridges, railroad yards, etc., has resulted in the notoriously high terminal charges at the Port of New York.

#### **Summary of Proposed Plan of Co-ordination**

The plan proposed is in great measure a matter of railroad co-ordination. It has been proposed to construct several belt line railroads circling the Metropolitan Port District, one such line in New Jersey near the



UNLOADING FREIGHT FROM CARS ON FLOAT

outer limit of the port district intersecting and tapping all the trunk lines crossing the State of New Jersey, supplementary or belt lines nearer the waterfront developments for articulation and connection to the trunk lines direct or through the exterior belt line. Classification yards and union freight terminals for the assembly into carload and trainload lots to be constructed where necessary along the belt lines. Waterfront terminals to be established for the direct receipt and loading into vessels on the New Jersey side.

Newark Bay, the Passaic and Hackensack Rivers present magnificent opportunities for the establishment of such terminals with direct connections between steamship, railroad and manufacturer. The territory tributary to the Newark Bay and the Passaic Valley presents the greatest natural advantages for industrial development existing in the world today. Such terminals to handle all goods not needed for consumption or manufacture in New York City.

Reorganization of the railroad yards on the New Jersey shore of the Hudson River, which are already

overcrowded and inadequate, and the adaptation of this shore front to railhead-steamship connection with adequate terminals. Such plans are maturing in the minds of railroad operators themselves.

Union lighterage terminals to handle all carfloat and lighterage business now crossing the North River. Vehicular and railroad tunnels under the Hudson River will further diminish the lighterage across the Hudson River and connect Manhattan and the New Jersey metropolis, a future Hudson River bridge eventually to connect Manhattan and New Jersey reducing lighterage to a minimum.

The essential features of this plan formed the basis of many reports prepared by authorities on the subject of harbor development in general and the Port of New York in particular.

A general plan for removal of the railroad occupancy of the New Jersey waterfront and for relief from the congestion in New York Harbor as outlined above would then be:

- (1) The comprehensive co-ordination and unification of all transportation facilities within the



LIGHTERAGE CONGESTION OF WATERFRONT ON NORTH RIVER, MANHATTAN

New Jersey portion of the Metropolitan Port District, including articulation of the railroads and waterfront by, ultimately:

- (a) An exterior belt line railroad in New Jersey near the outer limit of the Metropolitan Port District.

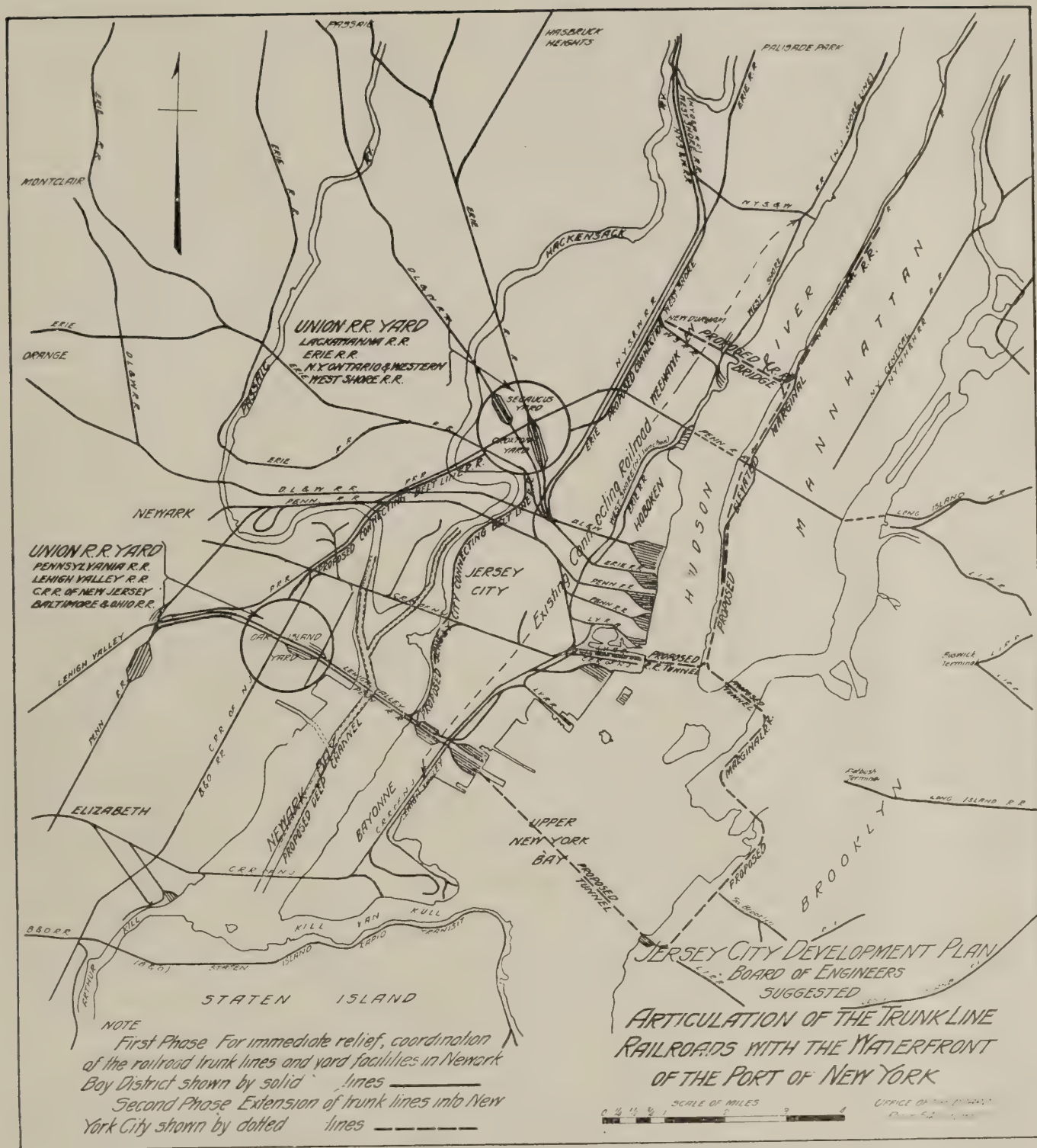
#### **Immediate Plan**

- (b) Supplementary belt line or marginal connecting railroads closer to the waterfront developments of Newark Bay and the Hudson River.
- (c) Union classification yards, warehouse facilities and union waterfront terminals supplementing the belt lines in New Jersey.
- (d) Vehicular and railroad freight tunnels under the Hudson River.
- (e) Hudson River Bridge with freight and passenger tracks.

#### **Unification and Connection of Existing Trunk Line Yards in the Newark and Hackensack Meadows**

Obviously the existing freight handling facilities in the New Jersey district cannot be junked. An articulation of what exists and expansion thereof is the logical mode of procedure.





Quick and effective results can be obtained by unification of the existing break-up and classification yard facilities in the area commonly termed "Hackensack Meadows," the lands adjacent to Newark Bay, the Hackensack and Passaic Rivers, amplifying these existing facilities by connecting them together with short belt or marginal roads.

About one-half of the railroad freight of the port is now handled by the Erie, D. L. & W., West Shore and New York, Ontario & Western Railroads near Scaucus or the Bergen Hill Section, at Croxton. The other half is handled at or adjacent to the Oak Island Yards, where the Pennsylvania Railroad, Lehigh Valley Railroad and the Central Railroad of New Jersey, and through it the B. & O. Railroad, come together.

One of these Union Freight Terminal Yards to be formed by connecting the existing Croxton Yard of the Erie Railroad with the existing Scaucus Yard of the D. L. & W. R. R. and connecting thereto the lines of

the N. Y. O. & W. R. R. and West Shore Railroad, 50 per cent. of the freight of the port can be handled here at Croxton.

A similar union yard established by consolidating the Pennsylvania-Lehigh Valley Oak Island Yards, connecting thereto the C. R. R. of N. J. and the B. & O. R. R., will accommodate the other 50 per cent. of the business of the port

Marginal railroads connecting these two yards forming a complete belt line. The yards to be expanded to any necessary dimensions. This plan is necessary in any port scheme and can be realized at low cost, saving of time and is reasonably within the possibility of realization by joint action of the railroads. The existing yards can be readily connected; the Jersey City Belt Line is already under way.

An exterior belt line has been proposed in a number of plans. Such an exterior belt line is necessary for keeping freight, including grain, coal and ore, destined for New England, which should cross the river by a bridge or tunnels located above the northerly limit of the metropolitan district, and grain for export should come directly to elevators at terminals located in Newark Bay, Raritan Bay and other points near the southern end of the exterior belt, from passing through the metropolitan district. Certainly, New England coal should not pass through New York City or be towed from Perth Amboy and other points through the river and Long Island Sound by barge tows.

The construction of an exterior belt railroad with classification yards and union terminals necessarily involves much capital and a long period of time to become a reality and should be a future step in the port plan. It would aid in the development of the lands adjacent thereto.

In the proposed unified yards can be classified and separated the commodities whose ultimate and final destination is Manhattan or other part of New York for shipment across a Hudson River bridge or for transfer to union lighterage or steamship terminals located along the Hudson River shore, both of New York and New Jersey, for their accommodation. The freight destined for transatlantic or other foreign shipment to be conveyed directly to and from the railroad, warehouse or steamship terminals located along Newark Bay, the Hackensack and Passaic Rivers, avoiding New York City and thus releasing the present railroad piers occupying the best waterfront in Manhattan and a large portion of the area now occupied by railroad yards on the New Jersey side for the location of modern steamship piers for the ocean passenger steamers; piers of the first class, of ample width and length with wide slips, modern loading appliances and ample facilities for motor truck and trailer accommodation to the adjacent warehouse, manufacturers or store door delivery. Union lighterage terminals would eliminate much of the floating equipment now duplicated, by each trunk line, this further reducing railroad occupation of both shores of the Hudson River, permitting here the construction of two and three story modern storage piers of the largest dimensions, accommodating full cargoes for the ocean steamers with modern loading appliances for quick handling of bulk or package freight. The piers in addition made accessible to motor truck delivery. This plan is workable from an operating standpoint. It has received the approval of practical railroad operators.

### **Fruits and Vegetables on Railroad Piers**

On the New Jersey side should be located freight receiving accommodations for the foodstuffs, fruits and vegetables now delivered to railroad piers on the lower west side of Manhattan, where they are stored on the piers which are in effect auction rooms for the commission merchants located along Greenwich and adjacent streets from Cortlandt Street north. All the southern and California fruits and vegetables are brought in here plus the New Jersey and adjacent truck farm products. The cost of carrying these foodstuffs across the Hudson is paid for not only by the New Yorker but by the people of New Jersey as well. Much of the fruits and vegetables are brought here from New Jersey and Long Island and eventually returned there for consumption. If these necessities of life were delivered at proper stations located on the New Jersey side of the river, they could be sold directly from the car to the consumer and carried by him to any part of New York City to the retail store or home direct through the Vehicular Tunnel under the Hudson River and eventually over the proposed Hudson River Bridge without passing through the commission district.

The occupation of piers in lower Manhattan for the accommodation of this foodstuff, fruit and vegetable market is a very expensive luxury for the people of New York; it results in a maximum cost of the necessities of life and prevents expansion of the harbor accommodations for the steamships which bring business and trade and lower taxes.

### **Supplementary Belt Line or Marginal Connecting Railroads**

The part of this general plan with which Jersey City is most intimately concerned is the construction or completion of a *Belt Line Railroad* entirely encircling the City.

Whether or not a general plan for the relief and expansion of New York Harbor and the Metropolitan Port District is devised, this Jersey City Belt Line Railroad is a vital necessity for the development of the water-



front and industries of Jersey City and the realization of this railroad should at once be incorporated in the plan and policy of development of Jersey City.

### **Jersey City Belt Line Railroad**

Whether or not the development of the Jersey City waterfront is made as forming a part of the general Metropolitan District port plan, or whether Jersey City develops its waterfront facilities for its own local immediate advantage regardless of the port district at large, in either case this *Belt Line Railroad* is a prime necessity. It is a vital part of a Jersey City Port Development Plan.

Three sides of this belt line are now in existence, it remains only to construct a connecting link along the west waterfront to completely encircle the City, as follows:

A connecting railroad exists today along the westerly shore of New York Bay and the Hudson River extending from Bergen Point in the south to Weehawken in the north, where it connects with the New York Central Railroad. From Constable Hook the Lehigh Valley (National Docks Railway) extends to the Pennsylvania Railroad, there connecting with the New Jersey Junction Railroad extending to Weehawken. Physical connection exists between this connecting railroad and the Central Railroad of New Jersey, the Erie and the Delaware, Lackawanna and Western Railroad. Both the National Docks and the New Jersey Junction Railroads were built for the ultimate purpose of creating a railroad articulation of the easterly waterfront of Hudson County and to the north thereof. Its present existence is due to the foresight of railroad business men with a broad view and a wide horizon.

In short we have an existing railroad along the east side of the City. Transverse railroad trunk lines cross the City near its northerly and southerly boundaries and midway between these limits, all of which are physically connected to and can be considered to form a part of the connecting belt line railroad extending along the easterly side of the City.

### **West Side Connecting Link, Jersey City Belt Line Railroad**

There remains in order to complete a belt line railroad completely encircling the City the construction of a connecting railroad along the westerly side of the City from its southerly boundary extending northerly to connect with the transverse (east and west) railroad lines near the northerly boundary of the City.

This connecting railroad should extend from the Lehigh Valley and Pennsylvania Railroads, near the southerly city line, along the westerly side of the City, generally following the shore line of Newark Bay and extending northerly to and beyond the Pennsylvania Railroad, where it should connect with the Erie and Lackawanna Railroads. Connections to be made with the Lehigh Valley and Pennsylvania on the south, the Central Railroad of New Jersey, Pennsylvania, Erie and Lackawanna Railroads. Sidings and switches to industrial establishments to be built as required.

The construction of this West Side Connecting Railroad is of vital importance in the development of the westerly waterfront. Without it development for industrial and harbor purposes will be retarded. Its construction must become an assured fact without delay.

### **General Description of the Proposed Jersey City Belt Line Railroad**

The proposed connecting link completing the Jersey City Belt Line Railroad is to extend from the Lehigh Valley-Pennsylvania Railroad Bridge over Newark Bay, near the Bayonne City Line, along the west bank of the Morris Canal at approximately the present grade to within about 1,500 feet, more or less, of the Lincoln Highway, where it begins to rise on a viaduct crossing the Lincoln Highway by an overhead bridge and extending across West Side Park on an elevated structure, again coming to grade near the Pennsylvania Railroad, which will cross it by an overhead bridge. The elevated portion of the line extending through the West Side Park to extend immediately alongside of the proposed Rotary Highway, both the railroad and the street being carried through the Park between two embankments supported by retaining walls, the embankment slope treated as landscape features of the park by planting with trees, shrubs and flower beds. Parkways extending across the railroad and highway to be carried over by architecturally decorated bridges. The whole forming a decorative feature of the park. The open cut created by the retaining walls and embankments effectually hiding the objectionable features of the railroad structure and the commercial traffic along the Rotary Highway.

Connections to be made with Droyer's Point where an extensive railroad yard is planned, and with the proposed Hackensack River Development where yard facilities are indicated and provisions for sidings are made. Connections to be made with the Pennsylvania, Lackawanna and Erie Railroads on the north and the proposed union yard.

Whether municipal ownership of this railroad is desirable seems doubtful. Its construction and operation should be jointly by the railroads using it. If this is not feasible the City should build the railroad to be operated by the railroads jointly.

The City should co-operate to the utmost with the railroad interests to make the construction an assured fact without delay. Every assistance should be given in the acquisition of the right of way and removal of legal and physical obstacles to its realization. No quibbling over insignificant details should jeopardize a mutual understanding that the City and railroad interests are meeting on common ground in a business proposition of mutual advantage. Much delay and trouble can be avoided by such a proposition.

It is understood that several roads are studying the question of a marginal railroad along the westerly waterfront at this time. Steps should be taken at once to consult with these to determine their policy and intentions, assuring them of the earnest and hearty co-operation of the City in every manner possible to further the work. The Lehigh Valley Railroad has taken steps to acquire the right of way necessary to lay tracks from a point near the easterly end of its Newark Bay crossing to and along the tow path of the Morris Canal, practically on the location of the above mentioned proposed belt line.

Both the Lehigh Valley and the Pennsylvania Railroads are planning extensions of their yard systems in the Newark Meadows and in connection therewith the reconstruction of the bridge across Newark Bay jointly used by these railroads to accommodate four tracks, the bridge to be raised to provide a free clearance of twenty-five feet above mean low water. In addition to this both railroads are to build piers on the Newark shore of Newark Bay where their tracks first reach tidewater. This seems sufficient evidence to show that the railroad corporations are considering the possibilities of Newark Bay development.

Time is of the essence of this matter. Delay may result in railroad occupancy of the west waterfront as is the case on the North River and this danger is not so remote as to be negligible.

The realization of the Belt Line Railroad was thought so vitally necessary to the immediate development of the City and particularly of its west waterfront, that its construction formed the subject of a preliminary report covering in effect what has been stated above, recommending to Commissioner A. Harry Moore that the City subscribe to the necessity for a Belt Line Railroad by officially declaring it to be the policy of the City that it be constructed.

Upon Commissioner Moore's recommendation the City Commission, therefore, on August 17, 1920, adopted a formal resolution as follows:

(1) That the location of the proposed marginal railroad along the westerly side of the City be officially incorporated in and form a part of the *Map of the City of Jersey City*.

(2) That it be the policy and plan of the City that this railroad be constructed and that the question of ways and means for its construction be at once taken up with the various railroad corporations involved.

The realization of this westerly link of the Belt Line immediately connects the proposed west waterfront developments of the City with the great trunk lines, thereby insuring the rapid industrial and commercial development of the entire west waterfront and a consequent increase in ratables throughout a very great area. The advantages of this Belt Line Railroad are incalculable when contemplated for its effect upon the proposed west waterfront terminals, connecting as it will the industrial area with the *great trunk line railroads*.

### **Electrification of Railroads**

The present steam operated railroad yards extending along the Hudson River and New York Bay waterfront are a blight upon the City of Jersey City. The smoke, dirt and filth incidental to the steam operation of these yards is not only a nuisance but it is a menace to the public health. This condition has contributed more than any other to make lower Jersey City an undesirable place in which to locate. It has resulted in the deflated value of what was originally desirable real estate and consequent reduction of ratables. The time has come for active measures to do away with this condition and clean up the City.

The re-organization of the Port District now being planned by a Bi-State Commission should include the electrification of steam railroads within the City limits.

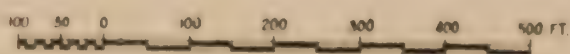
Many structures and appurtenances required for steam operation would thereby be made unnecessary and the areas now occupied by unsightly round-houses, coal pockets, water towers and similar structures would be cleaned up forever, the entire railroad yard district would assume a different aspect, and adjacent occupancy would become desirable and sought after for industrial and residential purposes.





**LEGEND**

- Proposed initial track system shown thus, ————
- Suggested siding system shown thus, - - - - -
- Brick buildings shown thus, [rectangle]
- Concrete " " " [rectangle]
- Iron Covered " " " [rectangle]
- Frame " " " [rectangle]
- Suggested future extension to Main Stem ————●———



**JERSEY CITY DEVELOPMENT PLAN**  
**BOARD OF ENGINEERS**  
*Map showing*  
**PROPOSED TRACK SYSTEM**  
*for the*  
**FAIRMOUNT TERMINAL**

OFFICE OF THE BOARD,  
 Room 54, City Hall, J.C.  
 Drawn by E.C.J.

SCALE 1"=150'  
 June 10, 1920  
 Checked by P.G.







The electrification of the New York Central Railroad Terminal and unsightly yards formerly extending northerly from 42nd Street, New York, and the resulting transformation of the entire adjacent locality, is an example of what can be accomplished along these lines.

The modification of the existing conditions by compelling a general railroad clean-up in Jersey City is a most necessary feature also in connection with the opening up of lower Jersey City to development in connection with the anticipated traffic through the Vehicular Tunnel under the Hudson River.

The extension of electric operation throughout the New Jersey part of the Metropolitan Port District should be made a matter of close study in the preparation of a general port plan. The greater flexibility of such operation would undoubtedly facilitate also the use of many mechanical loading devices in connection with waterfront terminals and industrial developments. It permits much greater latitude in providing railroad access to waterfront developments. The Hackensack River and adjacent lands present admirable sites for the location of power stations of any magnitude.

Here again should be considered the idea of unification of effort and expenditure. The establishment of union power plants should be considered, thus reducing cost of operation and maintenance.

The incorporating of this feature in the Bi-State plan for development of the port, now in preparation, is of vital importance to Jersey City.

### **The Fairmount Terminal**

The area generally bounded by Grand Street and Railroad Avenue, Cornelison Avenue and Brunswick Street, is fast developing into an industrial and manufacturing district. Many large manufacturing concerns are now located within this area, nearly all of whom require railroad connection to facilitate transportation of their products. These concerns are under a large annual expense for hauling by motor truck to railroad stations, etc. In order to eliminate the delay incidental to such trucking and to provide for the expansion of existing industries and the attraction of new concerns to this location, it is necessary to provide proper railroad transportation. Some of the large industries here located have seriously considered the abandonment of their plants for other locations on account of the excessive cost of motor truck hauling and the lack of railroad connections. This situation has been studied by the Board of Engineers together with the Fairmount Terminal Committee of the Chamber of Commerce and the heads of manufacturing concerns located in the district with the result that a practical railroad plan for this area has been developed, the essential features of which are as follows:

#### **Proposed Fairmount Terminal Railroad Development**

*Main Stem:* It is proposed to build a railroad track connecting with the National Docks Railroad elevated structure near the northerly side of Grand Street and extending thence northerly and along the westerly side of the National Docks Railroad to the surface of the ground at Bright Street, extending thence westerly along Bright Street to Factory Street and southerly along Factory Street, crossing Warwick Street, Fairmount Avenue, Johnston Avenue and Bishop Street to State Street. This to be the *main stem of a terminal railroad*. A double track to be provided on Bright Street for car switching.

A possible future extension of the main stem of the proposed Terminal Railroad, easterly along Bright Street, is shown.

*Sidings:* Industries requiring railroad facilities to be provided for by sidings connected with the main stem where necessary. The plan shows in dotted lines suggests possible locations for such sidings, indicating their crossing existing or proposed streets at grade. The cost of such sidings to be paid for by the industries which require them.

*Plans for Construction:* There are several ways in which the construction of this proposed Terminal Railroad can be realized, viz:

1st—Construction and operation by the City.

2nd—Construction and operation by the Lehigh Valley Railroad.

3rd—Construction by the City and operation by the railroad.

4th—By franchise for its construction granted to an organization of the industries requiring it, to build and operate it at their own expense.

The latter seems to be the most feasible and desirable method.

The realization of this plan is now under consideration by the Fairmount Terminal Association, who are determining ways and means for financing the cost of the proposed plan.

# Harbor Improvements

The Hudson River Waterfront.

The South Cove Development.

Disposition of the Morris Canal.

The Westerly Waterfront.

Deeper Channels in Newark Bay and Hackensack River.

## The Port of Jersey City

Jersey City by virtue of its geographical location, occupying as it does an extent of over five miles of the most important waterfront of New York Harbor, the westerly shore of New York Bay and the Hudson River, and with a shore line of nearly six miles on Newark Bay and the Hackensack River, was manifestly intended by nature to be the greatest seaport of the United States, the gateway, so to speak, to America. On the New Jersey shore are located the great trans-continental trunk line railroads, the arteries of the land, and here exists the possibility to directly connect these arteries of transportation with the ocean steamships carrying the commerce of the world. The areas adjacent to the waterfront development permitting the practically unlimited expansion of industries and manufacturers, impossible upon Manhattan and Long Island.

Notwithstanding the magnificent natural advantages and the opportunity to become the greatest port of the country, if not the world, Jersey City has little or no maritime commerce and as a seaport its importance is negligible. The reason for this condition has already been pointed out; its cause is the attempted concentration within and domination by Manhattan Island and New York City of the commerce of the port; this resulting in the railroad blight upon the City of Jersey City. But the ill organized and inadequate harbor accommodations have reached the point where they must be expanded, and this necessary reorganization presents Jersey City's opportunity to regain the position of eminence as a great seaport for which its magnificent waterfront on the Hudson River, Newark Bay and the Hackensack River intended it.

## The Hudson River Waterfront

Practically the entire Hudson River and New York Bay shore of the City is owned or occupied by or is under the domination of the trunk line railroads reaching tidewater through the State of New Jersey. The removal of this railroad occupancy is difficult and will require time to accomplish. The method to accomplish this has already been pointed out. No steamship terminal exists today along the entire waterfront of the City. There remain for development two sites, however, where a modern municipal terminal development can be made, namely, the

## Morris Canal Basin and South Cove

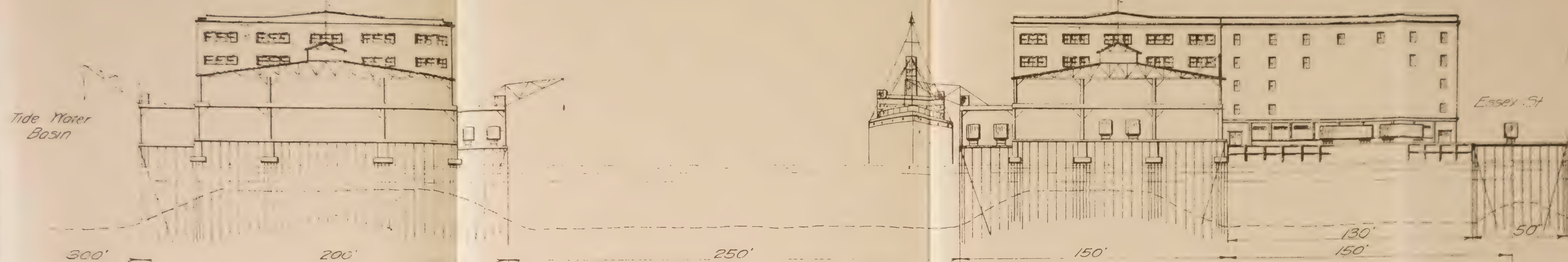
The area included within the entrance basin of the Morris Canal, the so-called Little Basin, and the South Cove property of the City located westerly of the Little Basin extending along Henderson Street from the Morris Canal southerly to the Tidewater Basin.

These sites present a great opportunity for the development of a modern marine terminal which would accommodate the largest type of ocean steamers entering New York Harbor. The location of the site is immeasurably superior to that of the great New York and Brooklyn terminals, for the facility of direct railroad connection to the western trunk lines exists here, which is not the case in New York or Brooklyn, thus obviating the delay of lighterage across the river. The disposition of the Morris Canal through Jersey City proposed in this report includes the urgent recommendation that the Little Basin and all Morris Canal rights in the Big Basin, or grant of 1867, and in the Tidewater Basin, located inshore of the Big Basin, be acquired by the State for the City of Jersey City in 1924 for development into a Municipal Waterfront Terminal.

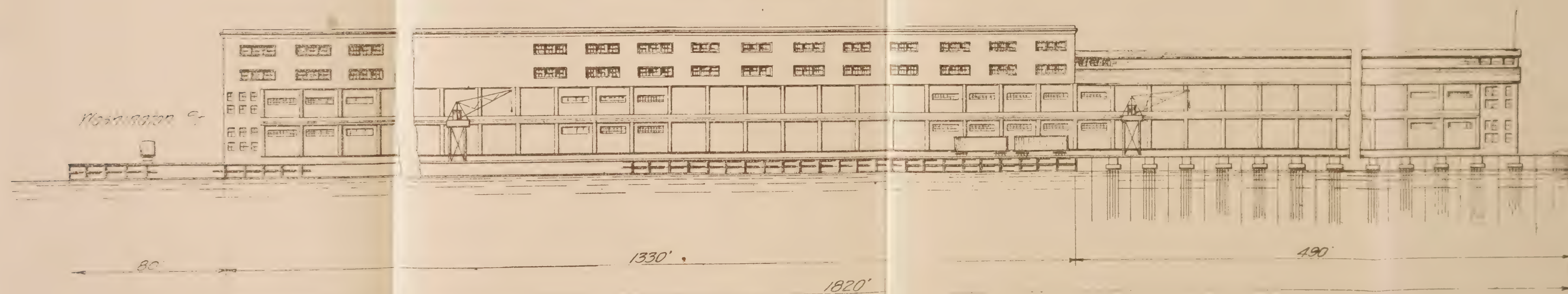
The City should exert the greatest vigilance and spare no effort to acquire this property and rights, presenting as they do the last opportunity for development and control by the City of Jersey City of a Hudson River waterfront terminal worthy of the name. The demand for steamship piers in Jersey City is constant. A great municipal terminal would be of incalculable value in improving the entire lower portion of the City, increasing ratables, industries and general business. The failure to secure this great opportunity would be an everlasting source of regret to the community at large and would be inexcusable in every sense.

Previous legislative commissions reporting upon the final disposition of the Morris Canal have suggested the release of the Morris Canal Basins and adjacent rights to the Morris Canal Company, or its lessee, the Lehigh Valley Railroad. Such disposition should be combated and prevented by the City of Jersey City by





Transverse Section  
— and —  
Partial Front Elevation

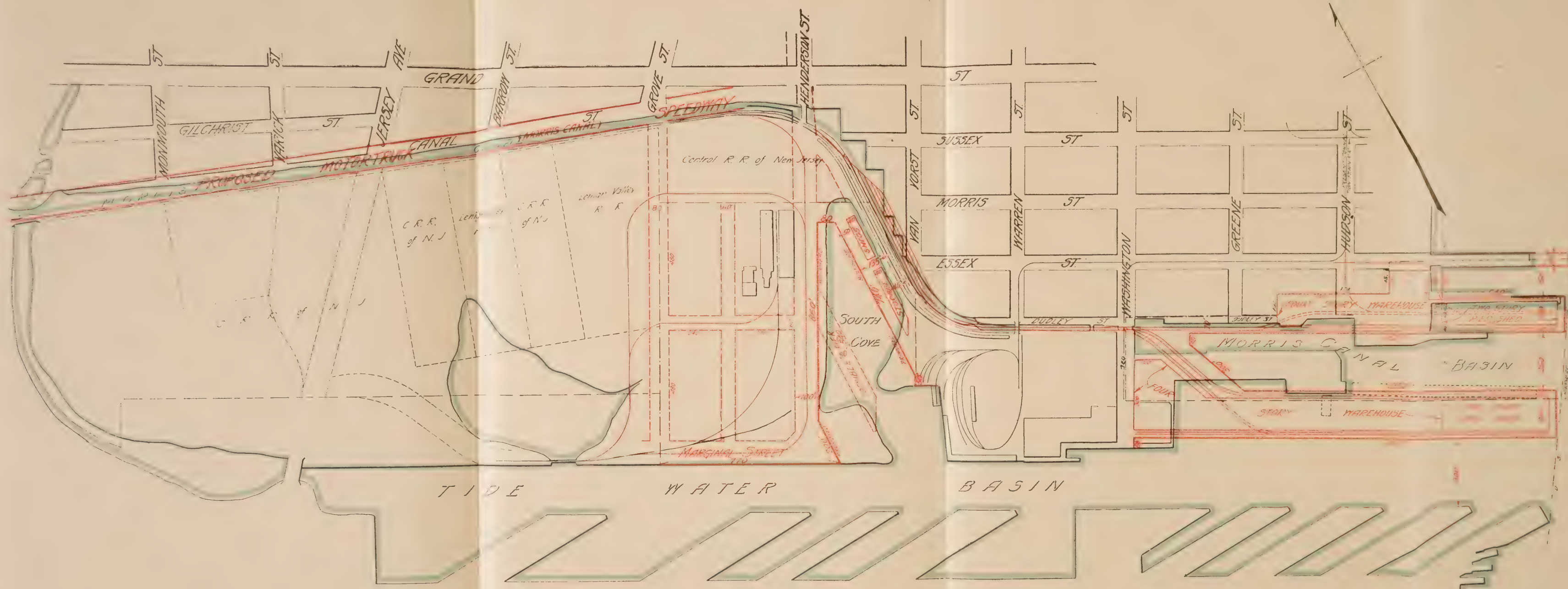


Partial Side Elevation

JERSEY CITY DEVELOPMENT PLAN  
BOARD OF ENGINEERS  
PROPOSED DEVELOPMENT  
— OF —  
MORRIS CANAL BASIN







Hudson River

JERSEY CITY DEVELOPMENT PLAN  
BOARD OF ENGINEERS  
PROPOSED DEVELOPMENT  
MORRIS CANAL BASIN  
AND THE  
SOUTH COVE  
OFFICE OF THE BOARD,  
City Hall, J.C.  
SCALE 1"=200'  
May 29<sup>th</sup> 1920





every means within its power. This property of right should belong to Jersey City and its return to the City should be compelled. The State Legislature should be brought to realize the vital importance of preventing the absorption by a railroad corporation of this last final vestige of chance for a municipal waterfront terminal development by the City so vitally necessary to its welfare, and every effort should be directed by the Legislature to aid the City to regain possession of at least this portion of its immensely valuable Hudson River waterfront.

The Little Basin contains an area of about 21 acres, extending from the foot of Washington Street northerly to near Essex Street and from the exterior line of piers in the Hudson River to Washington Street. The South Cove property extends along both sides of Henderson Street from the Morris Canal southerly to the Tidewater Basin and contain about 28 acres. Plan (page 74) shows a proposed general development for the Little Basin and the South Cove property of the City.

The development includes only that part of the South Cove lands actually the property of the City and does not extend over lands west of Henderson Street now claimed by the Central Railroad of New Jersey and others. The City should acquire, however, the lands between the South Cove grant and the Morris Canal to connect the development to the proposed motor truck speedway recommended to extend along or over the bed of the Morris Canal.

### **The South Cove**

A partial plan has been evolved for the South Cove (page 74). The plan proposes a widening of Henderson Street to 100 feet from the Canal southerly to the Tidewater Basin. It develops a basin with room for construction of a pier 540 feet long. On the easterly side a marginal street is proposed 135 feet wide permitting the erection of storage sheds for merchandise or produce. This marginal street presents an excellent location for the establishment of a public market. Farmers can bring their produce directly to this market via Henderson Street and the Morris Canal Motor Truck Speedway and direct connection exists to the trunk lines and the Hudson River Vehicular Tunnel via Henderson Street. The South Cove development would further form the best Barge Canal Terminal on the Hudson River with direct railroad connection. The plan provides about 3,800 lineal feet of wharfage. The South Cove property is now in possession of the City; this work could, therefore, proceed at once. The expected acquisition of additional lands will probably result in extension of the plan.

It is recommended that early action be taken in beginning upon this improvement, the completion of which would result in immediate increase in value of the City's property, the development of the adjacent industrial district and the ratables throughout a considerable contiguous area.

An approximate estimate of the cost based upon present day prices would be about \$600,000.00.

Waterfront property adjacent to the proposed improvement lacking the advantage of modern wharfage facilities is valued at \$1.00 per square foot; it is estimated that completion of this improvement would increase the value to \$2.00 per square foot, amounting to a gain of approximately \$500,000.00 in the value of the City lands.

### **Approximate Estimate of Cost**

The approximate estimated cost of the Morris Canal Basin and South Cove Development would be about \$14,650,000.00.

This includes acquisition of property, dredging to 40 feet, bulkheads, piers, two-story pier sheds and four-story reinforced concrete warehouses, gantry cranes, railroad tracks and yard complete.

Total wharfage developed.....	11,000 lineal feet
Pier area including sheds.....	1,150,000 square feet
Warehouse area .....	1,320,000 square feet

The development could be made for steamship or industrial interests demanding such facilities, the plant leased to these concerns upon a rental basis returning a sufficient interest upon the capital invested and providing for amortization, thus eventually returning the entire cost to the City.

The work would be undertaken in progressive steps as follows:

### **Immediate Improvement of South Cove**

Develop the South Cove as shown on plan and described above, total cost about.....\$600,000.00

## **First Improvement of the Morris Canal Basin in 1924**

Approximate cost.....\$4,500,000.00

Acquisition of the basin property and rights  
Dredging the entire area  
Build northerly pier, bulkhead and one-story warehouse  
Pave Dudley Street  
Build one-half of the railroad yard.

## **Disposition of the Morris Canal in Jersey City**

### **Introductory**

An important feature of the development of the City is the disposal of that part of the Morris Canal extending through Jersey City. Built in 1824 from the Delaware River to Newark and extended to Jersey City in 1836, the Morris Canal has not been operated with profit since 1871; in fact, its use for canal purposes ceased years ago. Far from being a public utility, that portion of the Canal extending through lower Jersey City has become a public nuisance, a menace to the health of the community, a breeding ground for disease and mosquitoes; portions of it are in fact a shallow ditch of foul smelling water used as a dumping ground for offal and refuse. Its existence in this condition is an offense against the health of the community at large and those persons condemned to live along its banks in particular. Whatever the ultimate disposal of the canal may be, the Canal Company should be compelled to flush it periodically, causing a flow and keeping the water fresh. The dumping of refuse or offensive matter into the canal should be stopped at once.

### **Ultimate Disposition of the Morris Canal**

The ultimate disposition of the Morris Canal has been the subject of investigations and reports by a number of legislative commissions appointed for that purpose, by engineers and others interested. These investigations have resulted in various recommendations for final disposition of the canal, including proposals that it be used as the right of way for a belt line railroad, that it be enlarged to the dimensions of a ship canal, that it be made a parkway boulevard, etc., etc. No definite action has resulted from these recommendations, but much valuable data was accumulated in the course of the investigations. This data has been given due consideration in arriving at the conclusions and recommendations contained in this report.

### **The Morris Canal in Jersey City**

The City of Jersey City is particularly interested in the disposition and the advantageous utilization of that part of the Morris Canal extending from the Hudson River to Newark Bay, including the very important canal terminal basins located on the Hudson River, the so-called Big and Little Basins.

Without going into a detail history of the canal situation, too extensive a subject for the limited scope of this report, the following statement of fact will aid in an understanding of the disposition of the canal herein recommended.

### **Purchase by the State in 1924**

A charter was granted the Morris Canal and Banking Company in 1824 (Pamphlet Laws 1824) to construct and operate the Morris Canal. Under the charter the construction of the canal was begun in 1824 and was completed from the Delaware River to Newark in 1831. The canal was later, in 1836, extended to Jersey City. It was enlarged in 1845 and subsequently so that eventually, in 1860, it carried boats of 70 gross tons.

Section XVI of the Charter of the Morris Canal and Banking Company reads as follows:

"At the end of ninety-nine years from the passing of this act (1924), it shall and may be lawful for this State to take to itself and on its own account, the said canal and its appurtenances, paying to the said Company the fair value thereof, to be estimated and fixed upon by ten commissioners, or a majority of them, to be mutually chosen by this State and said Company, or, in case it shall not be done at that time or within one year thereafter, this charter shall continue so far as it respects its canal operations and privileges for the further term of fifty years, when it shall cease and the said canal with its appurtenances become the sole property of the State."

Quoting from the Report of the Morris Canal Investigating Committee (April 12, 1912, p. 10):

"The State has the legal power to authorize by an act of Legislature the change of the use of any substantial part or all of said canal strip from its present to some other public use, should the State acquire the interest of the Canal Company or its lessee."





MORRIS CANAL LOOKING EAST FROM JERSEY AVENUE

Careful study of the Canal situation in so far as it effects the ultimate disposition of that portion extending through Jersey City, including the Big and Little Basins, in which study full consideration was given to previous reports and recommendations, has resulted in the conclusion that the following disposition of this portion of the Canal will be of the greatest benefit in the development of the City, viz.:

### **Modern Motor Truck Speedway Encircling the City**

That the Morris Canal bed generally be utilized for the construction of a modern highway for the operation of motor trucks at high speed, removing this dangerous and destructive vehicular traffic from the streets of the City, facilitating thereby this fast growing method of freight transportation undoubtedly destined to become a great factor in industrial development. This highway to extend from Henderson Street to approximately the line of 58th Street, Bayonne (extended easterly), and from the Hackensack River at Clendenny Avenue to about West 58th Street, Bayonne, a new highway connecting these two portions of the Canal route extending east and west on about the line of West 58th Street, Bayonne.

This utilization of the canal will create a continuous high speed motor truck highway from Manhattan via the proposed new Vehicular Tunnel and Henderson Street, widened to 100 feet, through the industrial area of the Lafayette and Claremont sections, where it will serve the New York Bay terminal developments of the Lehigh Valley Railroad now under way, the Pennsylvania and New Jersey Central Railroads; thence continuing southerly to about West 58th Street, Bayonne, and westerly to and along the entire west waterfront development of the City, near Droyer's Point, the realization of which waterfront development is no longer a dream, since the City Commission has appropriated \$650,000.00 for the immediate beginning of its construction.

Lateral connections can be made to this motor truck speedway to serve the Fairmount Terminal, the railroad freight stations at Jersey Avenue, Pacific Avenue, Claremont, etc. Important intersecting streets to be carried across by overhead bridges. Special electric or omnibus passenger service can be carried on it with stops at stations, this in effect creating a high speed passenger service from Jersey City to Bayonne and Newark, serving particularly the industrial and railroad establishments along the entire New York Bay shore of the City.

Produce markets can readily be established along it, particularly in the South Cove, where the farmers can bring their products directly from the farms by motor trucks and offer it to the consumer, eliminating the jobber and middle man.

### **Necessity of an Auto Truck Highway**

Auto truck traffic has come to stay. Transportation of merchandise and commodities through the State as well as the City is daily becoming more extended. The railroads do not wish short haul business. The delays and cost incidental to such railroad service are fast driving the merchants and manufacturers to the motor truck transportation. The construction of roads of sufficient strength and stability to carry this heavy traffic is very necessary; furthermore, such traffic is dangerous to human life as well as destructive to the pavement over which the unwieldy motor trucks travel. Their operation should be confined to roads or streets specially constructed for that purpose, removing this destructive and dangerous vehicular traffic from the regular street system of the City.

The proposed canal route for this speedway presents the necessary features to accomplish this purpose. Of first importance is the fact that the general street system and property sub-divisions terminate at either or both sides of the canal. With the surface of the proposed road approximately at the elevation of present water surface of the canal, no cross traffic would occur except where intended to tap adjacent industrial or other areas. Main intersecting streets to be carried overhead by bridges as is now generally the case. The road would be practically level, only such grade slopes occurring as are required to provide longitudinal drainage. The proposed road to be carried through a subway structure under the Central Railroad of New Jersey and Lehigh Valley main lines at Claremont. Other structures encroaching upon the canal property to be modified or removed. Grade connections to be made at Henderson Street, Jersey Avenue, Pacific Avenue and the important locations as above described to tap industrial areas. Garfield Avenue and adjacent streets in the Greenville section can be readily connected. The bed of the canal would provide ample space for a main trunk sewer, water lines, conduits, etc.



### **Auto Trucks Removed From the City Streets**

Traffic intended for Newark and outlying districts would be thus carried around the belt of the City, avoiding travel through the main street system of the City. The road would afford a great advantage to industries located in Jersey City, particularly to those located along the west waterfront, providing as it does a straight level industrial speedway to New York City unimpeded by the delay caused by open drawbridges as is the case with traffic to and from locations further west requiring crossing of the Hackensack and Passaic Rivers.

### **Proposed Barge Canal Connecting New York and Newark Bays**

It is proposed to widen and deepen the Morris Canal from Fiddler's Elbow to about the line of West 58th Street, Bayonne, to the dimensions of a barge canal, extending this barge canal westerly to Newark Bay and easterly to connect with New York Bay.

This canal would place Newark Bay and the waterfront developments there located and projected, the Port Newark Terminal, the Submarine Boat Corporation's plant and the West Waterfront Development of Jersey City and adjacent industrial areas within short lightering distance of New York City and should result in the extension of the lightering limit to include Newark Bay. The effect of such a direct connection between Newark and New York Bays would be of incalculable benefit in the development of Newark Bay, Passaic and Hackensack River waterfronts and the industries of the entire Passaic Valley. The canal would form further in effect a continuation or *extension of the New York State Barge Canal*, opening up a *direct barge canal route to the Great Lakes region*. Such a canal would be a benefit to the commerce of the entire State of New Jersey. Its construction by the State would be the best possible utilization of this portion of the now obsolete Morris Canal.

### **Municipal Terminal on the Hudson River**

That the Morris Canal Basin at the Hudson River end of the canal, the so-called Little Basin, and that portion of the canal east of Henderson Street, be acquired by the City for development into a modern steamship terminal in connection with the South Cove development of the City.

### **The Morris Canal Basins**

Two terminal basins form a part of the Morris Canal system at the Hudson River terminus of the canal. The Little Basin, so-called, extending from Washington Street to the exterior line of piers in the Hudson River and from Essex Street to and along what is called the Big Basin, extending generally in a westerly direction from the exterior line of piers along the present foot of Washington Street and along the South Cove property of the City.

This Little Basin, or entrance basin, to the Canal should be the site for the establishment of a first class marine terminal development. It presents the last opportunity for the municipal development of the city waterfront on the Hudson River. The development of this basin together with the South Cove property of the City should provide ample room for the construction of steamship piers to accommodate ocean liners of the largest type. A steamship terminal can be developed here comparable with the largest existing terminals in New York Harbor. Its location affords immeasurably better facilities for railroad connections and general operations than the Bush Terminal or the steamship terminals located along the Manhattan shore front. The City should, therefore, exert every effort within its power to acquire this basin together with the portion of the Morris Canal from Henderson to Washington Streets, and such rights as the Canal Company possesses in the Big Basin and the channels through this basin.

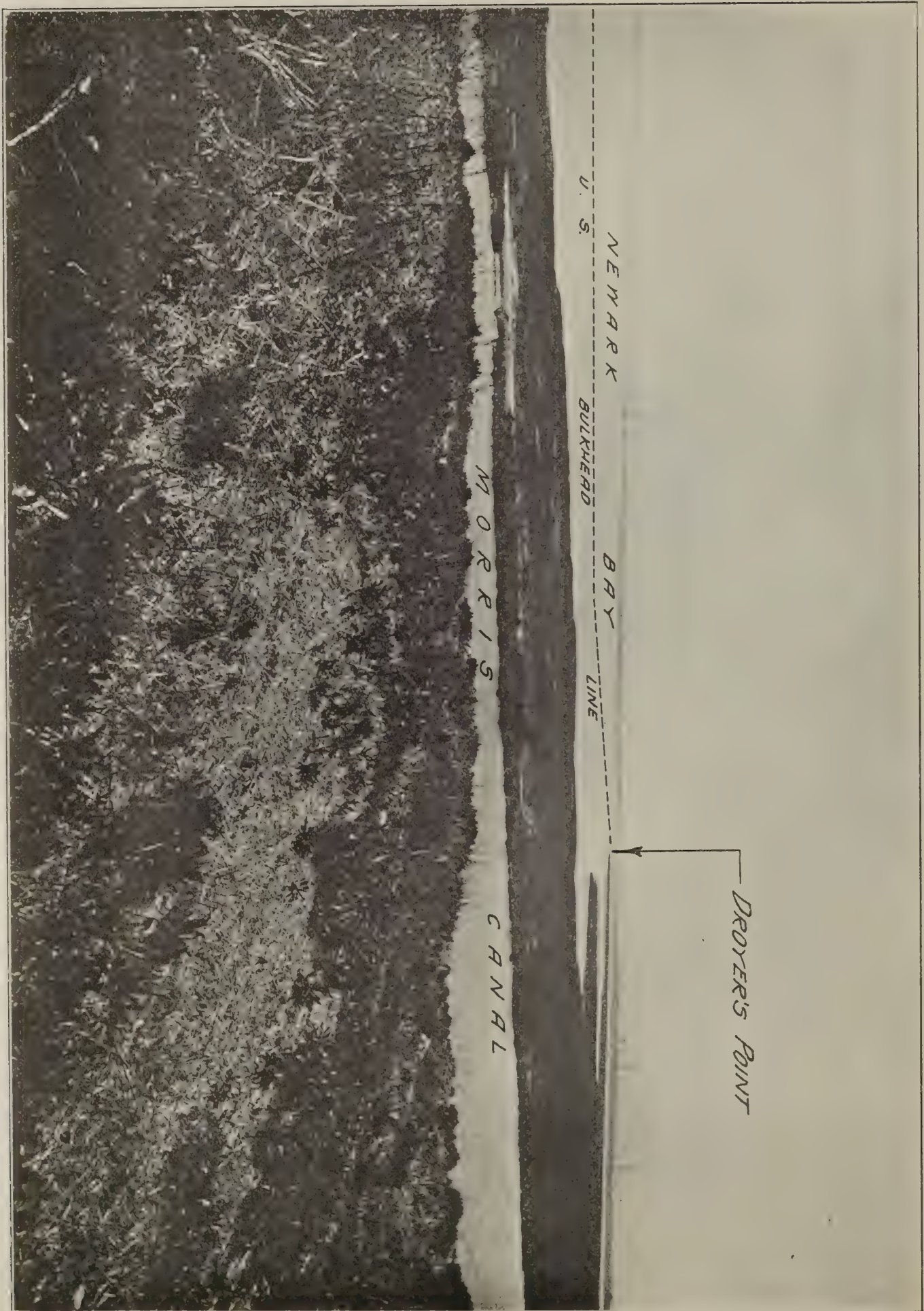
It is, therefore, recommended that this portion of the canal, the entire Little Basin and the canal interests in the Big Basin be acquired by the State of New Jersey in 1924 for account of the City of Jersey City and turned over to the City at the purchase price for development by the City for marine terminal purposes.

## **SUMMARY**

### **The Disposal of the Morris Canal**

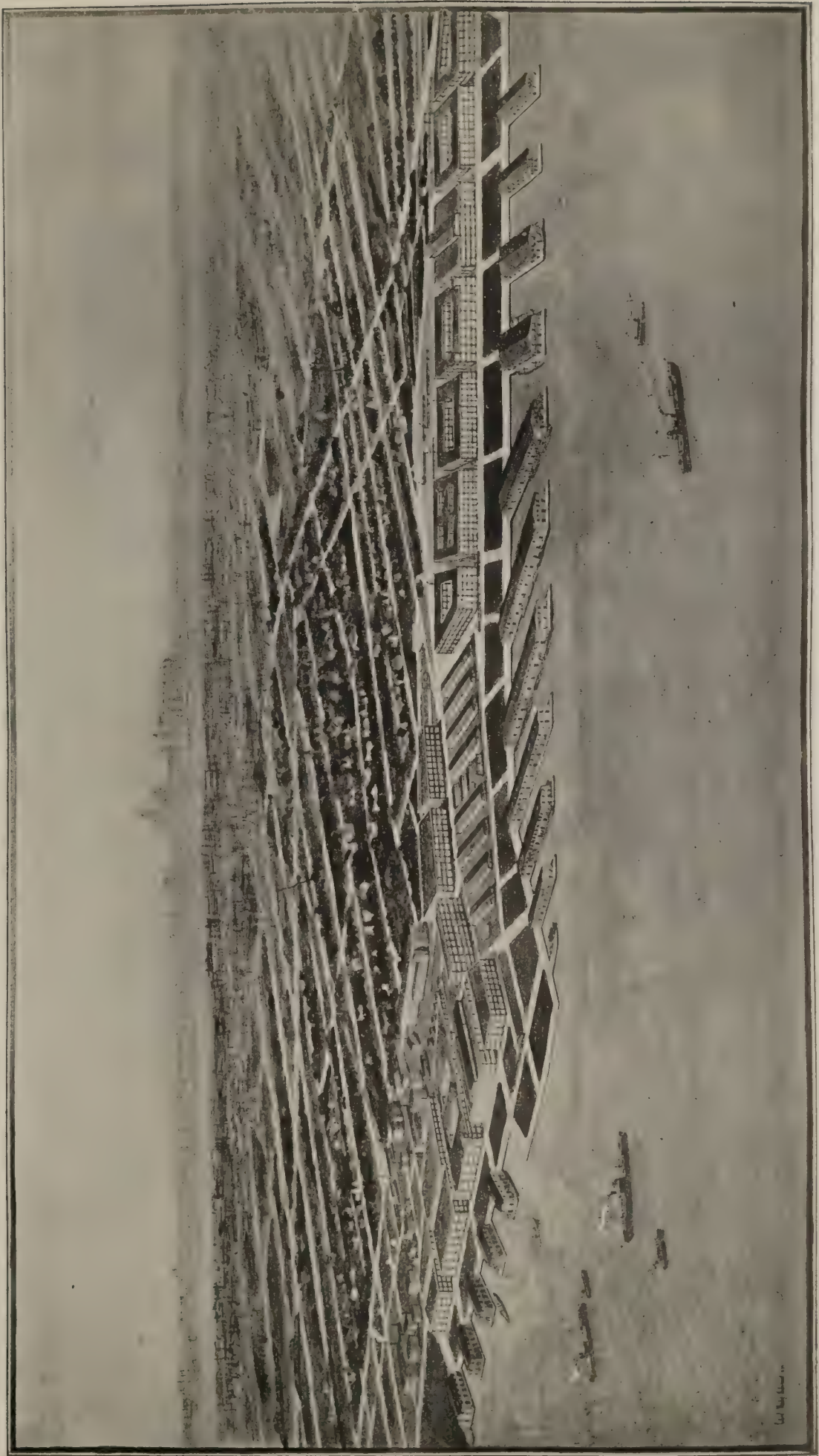
The recommendations herein made are of the most vital importance to the City of Jersey City in its development plan: immediate steps should, therefore, be taken to insure the realization of the work outlined.

It is, therefore, respectfully recommended that it be the plan and policy of the City of Jersey City in the ultimate disposition of the Morris Canal question in 1924:



SITE OF PROPOSED WEST WATERFRONT DEVELOPMENT AT DROYER'S POINT





PERSPECTIVE VIEW OF PROPOSED WEST WATERFRONT DEVELOPMENT AT DROYER'S POINT

That the State of New Jersey in 1924 acquire that portion of the Morris Canal extending from the Hudson River to the Hackensack River together with the terminal basins located on the Hudson River, for the following purposes:

(1) That the portion of the Morris Canal south of the Lincoln Highway adjacent to Clendenny Avenue and extending to about 58th Street, Bayonne, be utilized as the right of way for Hackensack Avenue, to be made a modern automobile and auto truck speedway.

(2) That the portion of the Morris Canal extending from about the line of 58th Street, Bayonne (extended easterly), on the New York Bay side of the City northerly to Henderson Street in Jersey City, be converted into a high-speed heavy motor truck highway. This highway to connect with the Vehicular Tunnel under the Hudson River at 14th Street, Jersey City, via Henderson street.

(3) That the portion of the Morris Canal extending from about 58th Street, Bayonne, to Fiddler's Elbow be converted into a Barge Canal, the necessary lands to be acquired to extend this Barge Canal into Newark Bay on the west and New York Bay on the east.

(4) That portion of the Morris Canal from Fiddler's Elbow to about 58th Street (extended), Bayonne, to be abandoned.

(5) That the portion of the Morris Canal extending easterly from Henderson Street, including the Morris Canal Basin and all Canal rights in the Big and Tide Water Basins, be acquired by the State of New Jersey in 1924 for account of the City of Jersey City and be turned over to the City at the purchase price, to be developed for marine terminal purposes by the City.

## THE WEST WATERFRONT

Newark Bay, the Passaic and Hackensack Rivers and the great valley extending from the foothills of the Palisades to the Orange Mountains, the Passaic Valley, present the opportunity for development of the greatest industrial, commercial and maritime city in the world.

No other location within the Metropolitan District offers such a magnificent opportunity for the creation of an ideal harbor with piers, wharves, warehouses and loading appliances of ample capacity and with direct railroad connection to the adjacent factory or industrial plant, for the construction of which there exists here unlimited space, for direct trans-shipment to and from the interior. All the trunk lines cross this great natural industrial basin on their way to carry more and more congestion to Manhattan and the Jersey City waterfront.

Newark Bay covers an area of over six square miles. It extends from the Kill van Kull northerly for nearly six miles to the Passaic and Hackensack Rivers, with an average width of over a mile, or nearly twice the width of the Hudson River at Castle Point. It is connected with Lower New York Bay and the Atlantic Ocean by the Kill van Kull, a river about 30 feet in depth and averaging 1,300 feet in width, approximately one-half the width of the Hudson River at the same point; a waterway ample in dimensions to carry ocean steamers of large type, and by the Arthur Kill, a second river extending to Raritan Bay, the proposed Intra-Coastal Ship Canal and the Atlantic Ocean. This great natural inland harbor, second in importance only to New York Bay itself, lies practically undeveloped.

While the Federal Government has from time to time improved conditions by the deepening of existing channels, no great step forward has been made. Lack in unity of purpose on the part of the municipalities located along the shores of the bay and rivers is to some extent responsible for this condition. A New Jersey Port Commission would tie these communities into a homogeneous whole, a body which could act jointly with a similar body in New York upon matters affecting interstate transportation.

The Federal Government has done much to improve harbor conditions and advance port development over the entire country, but the United States Government can hardly be expected to take the initiative in such work by providing channels in anticipation of future developments. Such initiative and propaganda must come from the adjacent interested communities themselves, who must precede their demands for deeper waterways and channels by active constructive operations, by developments showing the necessity for such work. The communities located along Newark Bay and within tributary areas should, therefore, unite their efforts to accomplish the improvement of Newark Bay. Such unification of effort can best be accomplished by the State of New Jersey through a properly constituted Port Development Commission.



The present channel in Newark Bay has a depth of 20 feet at mean low water and extends from the Kill van Kull at Bergen Point in a northerly direction diagonally across Newark Bay to the Passaic River, thence in a westerly direction along the southerly shore of the Passaic River to Newark. Two drawbridges exist in this channel, one in the trestle crossing of the Central Railroad of New Jersey, near the Bayonne shore at Bergen Point; the second in the joint trestle crossing of the Pennsylvania and Lehigh Valley Railroads near the westerly shore of the bay.

From the Passaic River immediately north of the Lehigh-Pennsylvania Bridge, the channel branches in a northerly direction following the general course of the Hackensack River, with drawbridges at railroad and highway crossings. This channel is now being deepened from 12 feet to 16 feet at mean low water by the United States Government; the dredging will be completed probably about November 15th.

There is, therefore, a now navigable channel with a depth of 16 feet at mean low water, or 20.7 feet at mean high water, from the Kills to and beyond Droyer's Point, the site of the proposed west waterfront development by Jersey City.

The conditions for economical deepening of the entire Newark Bay and Passaic and Hackensack Rivers are almost ideal. The lands adjacent consisting of great areas of meadows and lands under water present a great opportunity for reclamation by hydraulic filling, that is, by pumping the material from the bottom of the bay and rivers by hydraulic dredges and forcing this material upon the areas to be reclaimed, thus deepening the water for navigation while at the same time creating lands adjacent suitable for industrial and other development, the enhanced value of the reclaimed lands largely offsetting the cost of such dredging.

The City should concentrate its efforts first of all upon a further deepening of this channel to 30 feet at mean low water. Such depth of water is required by the Federal Shipbuilding Corporation located on the Hackensack River and would be of benefit to Kearney. Jersey City, therefore, should unite with these interests in its efforts to obtain extension of the present 20-foot channel to the Newark and New York Bridge of the Central Railroad of New Jersey at the mouth of the Hackensack River and the deepening of the entire channel to at least 30 feet at mean low water.

The improvement and development of the west waterfront of the City need not await the ultimate deepening of the entire Newark Bay or the dredging of additional channels. Sufficient channel depth exists to assure a profitable return on the development of the City's waterfront. Furthermore, the beginning of actual operations in improving the west waterfront of Jersey City and other municipalities will undoubtedly act as a spur in obtaining appropriations from the Federal Government for the improvement of Newark Bay, the deepening of existing and creation of additional channels.

### **West Waterfront Plan**

The west waterfront of the City is divided geographically into two parts, that portion extending from the Bayonne City boundary line to the Newark and New York Branch of the Central Railroad of New Jersey, including Droyer's Point; and the portion to the north of this extending along the Hackensack River from West Side Park to the Pennsylvania Railroad main line near the north end of the City.

The first will be discussed in what is to follow as Droyer's Point Development, the latter will be called the Hackensack River Development.

### **Droyer's Point Development**

The development of the City's west waterfront has been made upon a plan permitting progressive expansion, sufficiently in advance of requirements to make the facilities provided always ample to accommodate the growing harbor business. It is expected that the development of the reclaimed areas indicated upon the plan will take place from the land side rather than from the waterfront. The reclaimed land presents excellent sites for commercial and industrial plants directly connected through the proposed Jersey City Belt Line Railroad with all the trunk lines crossing New Jersey, the Rotary Highway and the proposed Morris Canal Motor Truck Speedway providing a direct uninterrupted route to New York City via the Hudson River Vehicular Tunnel. The expansion of these industries in number and size will result in demand for waterfront accommodations and these can be anticipated sufficiently in advance so that the structures planned will be ample in dimension and capacity to take care of future growth and demands for a reasonable period of years. It is not recommended or expected that Newark Bay will be developed for accommodation of the great trans-atlantic passenger steamers of the first class, but rather than it will become the harbor for all types of vessels other than these, the vessels carrying the freight and merchandise of the country to and from the manufacturer located here, throughout the Passaic and Hackensack Valleys, as well as the western imports and exports.

The necessity for piers along the west waterfront will develop as deeper channels are provided permitting the navigation through Newark Bay of sea-going ships. The present channel with a depth of 20 feet at mean low water, or 24.7 feet at mean high water, extends to and along the Passaic River to Newark. From the Pennsylvania-Lehigh Valley draw to and along Droyer's Point the existing channel is 16 feet at mean low water, or 20.7 feet at mean high water. The entire channel should be deepened to not less than 30 feet at m. l. w.

### **Tentative Pier Plan**

The plan shows a reasonable type of pier development which would be constructed to suit progressive needs and would pay for themselves, the space between the pier and bulkhead lines being ample to so modify the layout as to develop structures of even the largest type should such be found necessary. It is expected that the proposed bulkhead will provide sufficient wharfage for the immediate needs of the locality, Jersey City joining in the meantime with other interested cities in presenting to the Federal Government the necessity for a deeper channel while at the same time accumulating funds for its new improvement by sale or lease of reclaimed areas and by increased taxation of the reclaimed lands. These funds to be used for amplification of the harbor improvements when the necessity therefor becomes apparent.

### **General Description of the Droyer's Point Improvement**

The proposed Droyer's Point Development Plan is shown on Plate page 85. It consists essentially of the reclamation of the lands under water comprised between the bulkhead line or line for solid filling, the Morris Canal, the Bayonne City Line and the Newark Branch of the Central Railroad of New Jersey, including what is known as Droyer's Point. The entire area included between these lines, aggregating about 314 acres, to be reclaimed by hydraulic dredging and filling, that is, by pumping the sand or other material upon the meadow and land under water by discharge through pipes laid over the bulkhead to be constructed along the entire outer limit of the area to be filled. This hydraulic dredging to be so conducted that channels will be formed connecting the newly created land with the main government channels.

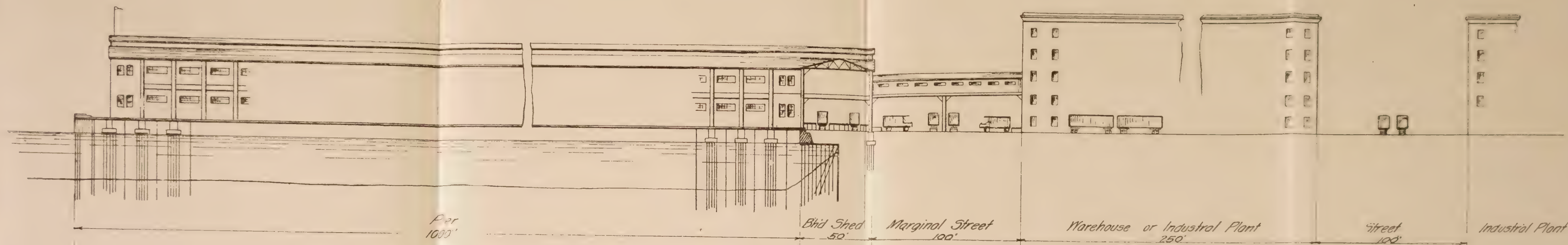
The proposed bulkhead will be approximately 10,000 feet in length and it is intended to provide wharfage for vessels of all types until such time as the necessity for pier space develops. Along this bulkhead is shown a marginal street 150 feet wide and paralleled by a second street 250 to 300 feet inshore of the marginal street, the block between these waterfront streets to be utilized for warehouse or manufacturing purposes under control of the City. A system of transverse and longitudinal streets is shown which is tentative and can be modified or amplified to suit the type of occupancy which will develop. The land inshore of the marginal street can be sold or leased by the City for industrial or commercial purposes. The plan shows a possible ultimate development of sixteen piers 150 to 250 feet wide and from 500 to 1,000 feet in length. One trunk line railroad has already made connection here.

The pier dimensions are to be considered tentative and subject to the modification as to the type and size required by the kind of business which will eventually occupy this waterfront. Ample room is provided for a railroad storage and classification yard to form a part of the proposed Belt Line Railroad running along the westerly side of Hackensack Avenue, and the entire development, the piers, bulkhead, marginal and other streets are connected to the Belt Line Railroad by ample track facilities. The Belt Line Railroad connecting the entire development with the trunk line railroads. Hackensack Avenue, forming a part of the proposed Morris Canal Motor Truck Speedway, extends along the entire improvement, connecting with the Rotary Highway on the north, and forms a high speed route to New York City via the Vehicular Tunnel under the Hudson River, unimpeded by drawbridges and other delays as is the case with locations on the westerly side of Newark Bay, the Hackensack and Passaic Rivers. Should the development of this locality become so intense as to necessitate the separation of auto truck and lighter vehicular traffic over Hackensack Avenue, this can be done by carrying this portion of Hackensack Avenue over a viaduct along the entire improvement from the Newark Branch of the Central Railroad of New Jersey to the Bayonne city line.

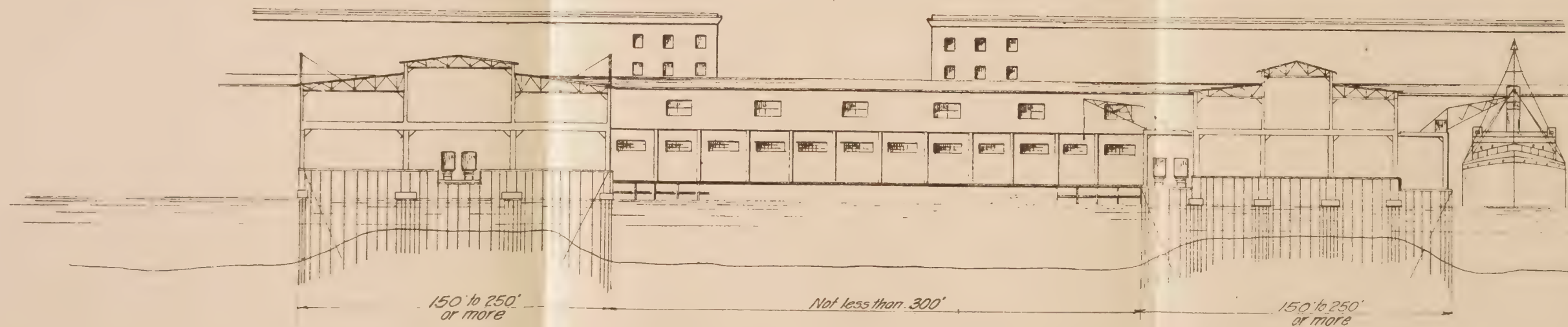
It is expected that the railroad articulation of this area will be electrically operated and therefore more flexible than steam railroad operation.

The present value of lands under water and meadows is about \$1,500.00 per acre. The value of adjacent now existing industrial land, is estimated at \$25,000.00 per acre. The reclamation of the lands indicated would result, therefore, in a gain to the City in land values or ratables of about \$7,000,000.00.





*Side Elevation and partial Cross Section*



*Cross Section thru Piers and partial Outshore Elevation*

*JERSEY CITY DEVELOPMENT PLAN  
BOARD OF ENGINEERS  
SUGGESTED  
WEST WATERFRONT DEVELOPMENT  
AT  
DROYERS POINT*

*OFFICE OF THE BOARD  
Room 54 City Hall, J.C.*

*May 1920*





Proposed ultimate development shown in Red.  
 Proposed second phase of development shown by Red Hatching.  
 Proposed ultimate pier development shown in Unfilled Red



JERSEY CITY DEVELOPMENT PLAN  
 BOARD OF ENGINEERS  
 PROPOSED  
 WEST WATERFRONT DEVELOPMENT  
 AT  
 DROVERS POINT

0 100 200 300 400 500 600 700 800 900 1000 FT

OFFICE OF THE BOARD  
 Room 54 City Hall







TYPES OF WAREHOUSE CONSTRUCTION



WAREHOUSE, BUSH TERMINAL, BROOKLYN



FACTORY BUILDINGS, NEW YORK DOCK CO., BROOKLYN

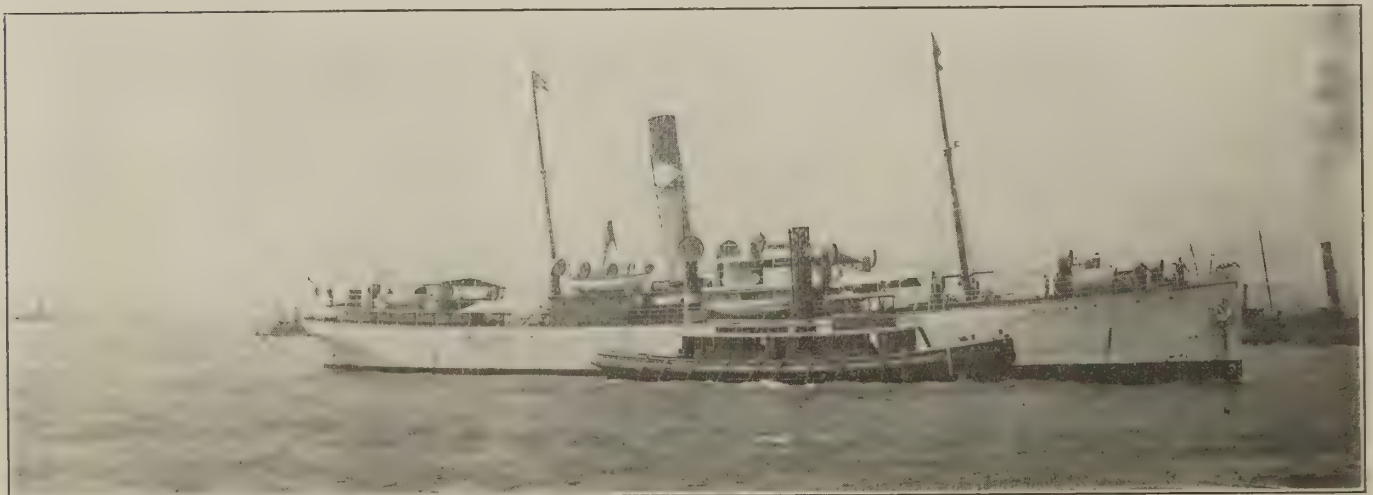
## TYPE OF STEAMERS EXPECTED IN NEWARK BAY



### Approximate Tonnage and Dimensions of Seagoing Steamships

(From American Bureau of Shipping)

<i>Gross Tons</i>	<i>Length</i>	<i>Beam</i>	<i>Draft When Loaded</i>
3,000	330	43	
4,000	370	49	
5,000	377	52	20 to 26 ft. draft
6,000	420	56	
7,000	445	58	
8,000	450	60	
9,000	475	62	
10,000	500	65	28 ft. draft
11,000	510	60	
12,000	550	60	
13,000	550	62	
14,000	548	66	
15,000	570	68	
18,000	605	70	
20,000	680	75	36 ft. draft





## TYPE OF STEAMERS EXPECTED IN NEWARK BAY



### Relocation of Bulkhead and Pierhead Lines

In order to connect the Droyer's Point Development with the existing United States Government Channels in Newark Bay and the Hackensack River, it becomes necessary to dredge not only a channel along the outer end of the proposed piers and over the pier sites, but it is in addition necessary to dredge connecting channels from the pierhead line to the present United States Government Channels, these channels lying well towards the westerly shore of the bay and the Hackensack River. Since Newark Bay and the river bed are here very shallow, the creation of these connecting channels involves the removal by dredging of very large quantities of material. All such material as cannot be utilized by hydraulic filling of the area to be reclaimed under this plan, the excess material must be carried to other localities by loading into scows or by other means. Such operations are extremely costly and the high cost would undoubtedly delay proceeding with this work.

The area included between the present upland which is approximately at the Morris Canal tow path and the present established United States Government Bulkhead line, the line limiting the solid filling in the bay and river, is so small that only a portion of the material which will have to be dredged can be deposited upon it. It is, therefore, necessary to extend this area to accommodate the largest quantity of fill possible. It is, therefore, proposed to move the United States Government Bulkhead and Pierhead Lines to the locations shown upon the plan (page 85). The proposed new location will still leave a minimum fairway across Newark Bay at this point of 3,400 feet, a distance 700 feet greater than the width of the Hudson River at Castle Point, Hoboken. A further reason for such re-location is the necessity of reserving a portion of the area of the improvement for the deposit of garbage, street refuse and ashes removed from the City. Since all available areas throughout the City for dumping this refuse have been practically filled up, space must be provided for it along the west waterfront.

The moving outward of the bulkhead line results in an increase of upland of about 34 acres.

It is recommended that immediate application be made to the United States Government, through the Secretary of War and other proper authorities, for re-location of the pier and bulkhead lines as shown in the proposed plan.



## Approximate Cost of the West Waterfront Development

The approximate total cost of the entire west waterfront development is about \$27,000,000.00. This includes acquisition of lands, dredging, bulkheads, piers, pier sheds, street pavements, drainage, railroad tracks and yards and other appurtenances.

The expenditure of this sum would, of course, not be made at one time. The work to be done should be undertaken by progressive steps within the financial means of the City, and as shown to be necessary by the demands for expansion of the improvements made.

The following plan of procedure is recommended:

### Suggested Plan of Procedure for the West Waterfront Development First Improvement

Immediate reclamation of the area adjacent to Droyer's Point proper, aggregating about 85 acres, as shown on plan entitled: "*Proposed Improvement at Droyer's Point, Board of Engineers' Office, May 10, 1920.*"

#### Approximate Estimate of Cost

Temporary bulkhead, 4,500 lineal feet at \$25.00.....	\$112,500.00
Permanent bulkhead, 1,200 lineal feet at \$125.00.....	150,000.00
Dredging, 1,000,000 cubic yards at 35c.....	350,000.00
	<hr/>
	\$612,500.00
Bridges and street changes (Danforth Avenue).....	25,000.00
Soundings, test piles, etc.....	12,500.00
	<hr/>
Total.....	\$650,000.00

Wharfage created, 1,200 lineal feet.

Approximate area reclaimed, 85 acres. (Includes the area for a proposed street system.)

Application for re-location of United States Government Bulkhead and Pierhead Lines.

Push propaganda to deepen 16-foot Government Channel to 30 feet.

#### Second Phase

Dredge 600-foot channel along bulkhead line 20 feet deep at mean low water from Droyer's Point to Bayonne City Line.

Dredge connecting channel to a depth of 20 feet at mean low water.

Reclamation of balance of area south of Droyer's Point to Bayonne City Line.

Permanent Bulkhead platform extended southerly to Pier 5, creating about 3,000 lineal feet of additional wharfage.

Temporary Bulkhead Platform extended southerly to Bayonne City Line, about 3,000 lineal feet.

Push propaganda to deepen Government Channels.

Total approximate cost, \$3,800,000.00.

This plan of procedure is tentative and its modification or amplification will depend upon the harbor business developed. Facilities should always be kept in advance of requirements. The improvements northerly of Droyer's Point proper to be developed as the third phase of the plan, excepting the acquisition of property which should proceed without delay; this including the Hackensack Development lands required.

#### Third Phase

Dredge connecting channel to 30 feet.

Construct Pier Sheds 6 and 7.

Dredge slips for Piers 6 and 7 to 30 feet.

Total approximate cost, \$2,450,000.00.

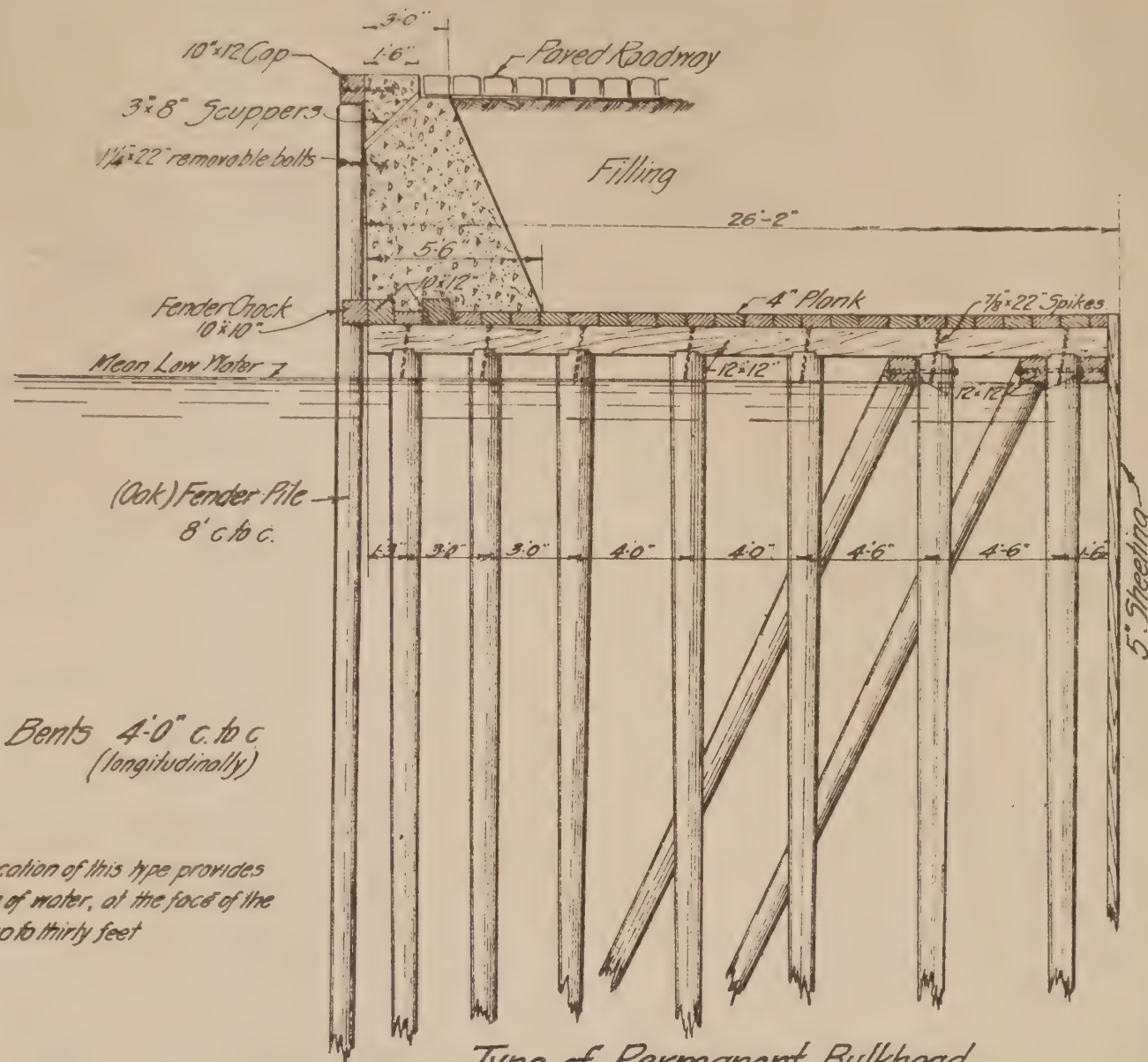
Construct Piers 6 and 7.

This plan of procedure is tentative and its modification or amplification will depend upon the rapidity with which the 30-foot channel is realized. Dredging of the 30-foot channel will probably result in merging phases two and three, with modifications.

#### Immediate Work

The first improvement herein outlined has formed the subject of a preliminary report of the Board of Engineers to the City Commission recommending that this work be undertaken at once. This recommendation was approved by the City Commission, who on August 17, 1920, appropriated the sum of \$650,000.00 to begin upon this work at once, thereby initiating at last the creation of the west waterfront development of Jersey City advocated for many years past. Surveys, soundings and tests are to be made preliminary to preparation of contracts for actual construction work, which it is expected to begin in the spring of 1921.



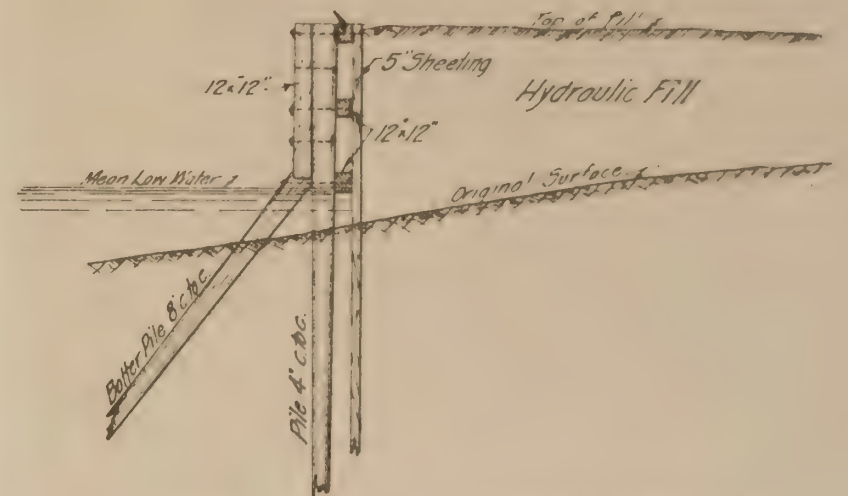


Bents 4'-0" c.b.c.  
(longitudinally)

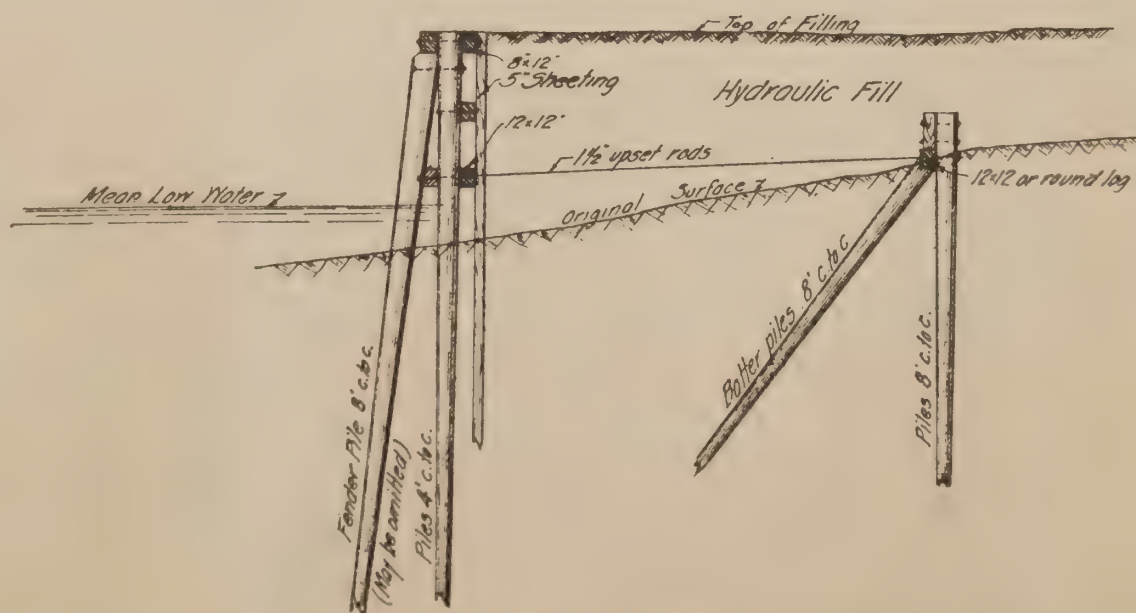
NOTE -

Modification of this type provides  
for a depth of water, at the face of the  
bulkhead, up to thirty feet

Type of Permanent Bulkhead



Typical Bulkhead without wharfage



Typical Bulkhead for 10 feet of face  
permitting light wharfage

JERSEY CITY DEVELOPMENT PLAN  
BOARD OF ENGINEERS  
WEST WATERFRONT DEVELOPMENT  
STANDARD BULKHEAD TYPES

Nov 1920

BOARD OF ENGINEERS  
Room 54, City Hall, J.C.







NEWARK

Existing Channel 16 ft

Channel 20 ft

Area to be Dredged

Area proposed to be filled to 5 ft above M.H.W.

1st Link

CANAL

CONNECTING BELT LINE RAILROAD

2nd Link

RAILROAD BRIDGE

JERSEY CITY DEVELOPMENT PLAN  
BOARD OF ENGINEERS  
PROPOSED  
WEST WATERFRONT DEVELOPMENT  
FIRST IMPROVEMENT  
AT  
DROYER'S POINT

100 0 500 1000 FT

Nov 1920

OFFICE OF THE BOARD  
Room 54 City Hall, J.C.





## The Hackensack River Development

The proposed Hackensack River Improvement is shown on Plan page 90. It extends from West Side Park northerly to the main line of the Pennsylvania Railroad, including also the Howell Street Wharf of the City and comprising all the land lying westerly of the proposed Rotary Highway. It consists essentially of the construction of permanent bulkheads along the river shore and reclamation of the areas described by filling deposited both from the inshore side, in the nature of garbage, street refuse and ashes, and by hydraulic filling from the river bed. The whole articulated by railroad tracks connecting to the proposed Belt Line Railroad. A street system is laid out over the land described which is considered as probably developing into warehouse and industrial establishments requiring rail and water articulation. Railroad connections are shown to the Belt Line Railroad with yard tracks. Hackensack Avenue is shown continuing from the Lincoln Highway northerly to connect with the Rotary Highway at Broadway. The area included between the Hackensack River and Hackensack Avenue is visualized as a wharfage and warehouse development under ownership or control of the City; the area inshore of Hackensack Avenue to remain in private ownership, the City here facilitating industrial development by permitting railroad articulation as shown upon the plan, tracks necessarily crossing and laid upon the proposed streets. The street system shown would be placed upon the map of the City and future developments compelled to conform to it.

The approximate cost of the Hackensack River Development as here outlined would be about \$3,450,000.00.

It is recommended that the first step in this improvement be the acquisition of the necessary waterfront lands, this to be done with the least possible delay.

The plan shows the extension of West Side Park southerly to Lincoln Highway. While such recommendation is, perhaps, not strictly within the province of the Board, it nevertheless suggests the desirability of this extension as another feature in preparation of the City Plan described in another chapter. Here can be developed bathing beaches, pavilions, boat houses and areas for water sports generally. The present Howell Street Wharf and the lands there owned by the City to be connected to the proposed Belt Line Railroad by a proper track layout.

## Essential Necessities for the Development of Newark Bay

The possibilities of Newark Bay and the adjacent lands as the location for a great industrial and maritime metropolis have already been pointed out. Certain necessary features are required to accomplish this development.

*First* and all important is the *unimpeded navigation of Newark Bay*. This involves the ultimate removal of the existing railroad bridges crossing the bay, substituting therefor a system of tunnels. Pending such ultimate entire removal of these obstruction such bridges should be reconstructed with a vertical clearance of not less than 25 feet and horizontal spans of not less than 125 feet, except the draws spans, which should have a vertical clearance of not less than 35 feet, thus permitting ordinary harbor traffic to pass under the bridges or viaduct at any point in their length, only the larger vessels being confined to the drawbridges and their operation.

*Second:* The deepening of existing 20-foot channel to 30 feet at mean low water and the extension of this channel to and including the mouth of the Hackensack River.

*Third:* Removal of obstructions at Bergen Point, including the Bergen Point Light and adjacent rock ledges, and dredging a proper approach to the United States Government Channel in Newark Bay.

Following upon these developments should come an easterly channel along the Bayonne and Jersey City shore. Drawbridges should be provided for to accommodate this future channel in all plans for bridge construction across the bay.

Attention is here directed to the necessary articulation of the proposed State Barge Canal connecting Newark and New York Bays, herein proposed. This canal should be connected to all channels, including the important connection to the Passaic River, tapping the great industries of the City of Newark, placing these and the west waterfront of Jersey City within the lighterage limit of New York City. The City of Jersey City should by every means within its power advocate the accomplishment of these essential necessities for the development of Newark Bay, uniting for this purpose its efforts with those of the other interested cities located in the Passaic and Hackensack Valleys.

*HACKENSACK RIVER DEVELOPMENT*



SITE OF PROPOSED HACKENSACK RIVER DEVELOPMENT, LOOKING NORTH FROM LINCOLN HIGHWAY BRIDGE





JERSEY CITY DEVELOPMENT PLAN  
 BOARD OF ENGINEERS  
 PROPOSED  
 WATERFRONT DEVELOPMENT  
 ON THE  
 HACKENSACK RIVER  
 NORTH OF LINCOLN HIGHWAY

100 0 500 1000 FT

OFFICE OF THE BOARD  
 Room 5A City Hall, J.C.

Sept 1920





## **Federal and Municipal Governments to Join in Paying Costs**

It is pointed out that the City of New York has an agreement with the United States Government whereby the city is reimbursed in part for all dredging done by it within Jamaica Bay. Similar agreement between the Federal Government and the interested New Jersey cities should be feasible in developing Newark Bay, and the accomplishment of such a joint contract should at once be made the object of the most energetic efforts of all those interested. A joint body in which are represented the municipalities willing to bear their share of the development should without delay confer with the Federal authorities to determine ways and means for deeper channels, without which Newark Bay cannot be developed to the extent necessary to relieve congestion in the Metropolitan District.

The situation is one of not only local, but of national importance; proper presentation of the possibilities of Newark Bay and the adjacent lands to the Federal authorities cannot but result in attainment of the goal sought.

Newark Bay and the Passaic and Hackensack Rivers are visualized ultimately as a great inland harbor with ideal articulation between the shipping industries and the railroads, the entire Passaic Valley becoming ultimately the greatest industrial city in the world. Such a picture is not overdrawn. It presents the solution of the New York Harbor problem, which solution can only be temporarily deferred by the periodical expansion of means for further concentration upon Manhattan, Long Island and other areas isolated by water barriers.

### **The Jersey City Chamber of Commerce**

The Board in concluding its report wishes to express its appreciation of the help and assistance and the many courtesies extended to it by the Chamber of Commerce of Jersey City.

The determination to prepare a comprehensive plan for development, a distinct step forward in the rehabilitation of the City, is in great measure the result of the work of the business men forming the Chamber of Commerce. The tireless efforts of its President, Thomas C. Sheehan, and the unceasing work of its Manager, Willard G. Stanton, have greatly contributed in educating the public at large and many individuals in particular to a realization of the necessity to plan the comprehensive development of the City, and in lining up behind the proposed plan the solid support of the men of big business who are identified with the Chamber of Commerce.

It should be noted that the Chamber of Commerce contributed the services of Martin Schreiber, its West Waterfront Engineer, who served as Chairman of the Board, and Albert F. DeCastro, Engineer to the Chamber, who served as a member.

It is to be earnestly hoped that the strong influence for public good of the Chamber of Commerce will be brought to bear to bring about the actual realization of the works herein recommended and prevent the interment of this report among the dusty archives of the City.

## **Conclusion**

In the introduction to its report the Board of Engineers has called attention to the necessity for the preparation of a comprehensive city plan and has outlined some of the more important subjects that such a plan should contain. The Board feels that after having read its report your Honorable Commission must have also become impressed with the necessity for a plan of this character. To prepare such a plan will require the constant attention of an experienced engineer assisted by a consulting board thoroughly familiar with local conditions. Your Board also feels that in the preparation of a plan of this character every opportunity possible should be given to the general public to express its opinion.

Your Board would, therefore, recommend that if it meets with the approval of your Honorable Commission there be created a lay commission consisting of say nine citizens of Jersey City, five to be appointed by the Mayor and four by the Chamber of Commerce, who shall be charged with the task of preparing a comprehensive city plan along the lines indicated in this report.

The Board further recommends that there be continued in office a consulting engineering board composed of engineers holding the positions equivalent to those retained by the present members of your Board, that is, the County Engineer, the Engineer to the County Tax Board, the City Engineer, the Harbor Engineer, the Engineer of the Department of Parks and Public Property and such engineering talent as can be fur-

nished by the Chamber of Commerce. This engineering board to serve as a consulting board to the lay commission, to be charged with the task of preparing a city plan, and your Board would further recommend that there be provided annually in the tax budget of Jersey City an item of \$30,000.00 for the use of this commission and its consulting Board of Engineers, in the engaging of such professional services as it may require in the preparation of plans, reports and for such other incidental expenses as may properly be considered a part of its work.

An alternative to this organization would be the continuation in office of the present Board of Engineers with an additional appropriation of the amount mentioned above for the continuation of their work. The Board, however, feels that the first suggestion is more practical inasmuch as it combines the talent of the engineers with the business judgment of your community.

It is of very great importance that either one or the other of these plans be carried out without delay for the reason that it is of the most vital interest to the City that a thorough analysis be made of the comprehensive plan proposed for the Metropolitan Port District, soon to be made public, in order that the City's interests be safeguarded and that the City's waterfront developments, the proposed belt line railroad and the reduction of railroad occupancy of the North River waterfront be included in this plan.

Further, the Vehicular Tunnel plans if carried out should result in a metamorphosis, so to speak, a resurrection, of the entire lower section of Jersey City; plans should be immediately begun for a street system of capacity anticipating these changes, including proper zoning of areas, the provisions for access to the tunnel by good paved streets of ample width, with good lighting, including a publicity campaign calling attention of the industries to this most advantageous location.

A very important necessity is immediate action to secure a re-location of the Government pier and bulkhead lines in Newark Bay, and the condemnation and purchase of waterfront lands along the west waterfront. The purchase of the Morris Canal by the State in 1924 involves the creation of the proposed Motor Truck Speedway in Jersey City and the construction of a modern waterfront terminal on the Hudson River. Constant vigilance is necessary here to safeguard the City. All these matters and a multitude of related conditions require the constant efforts of a virile, energetic body familiar with all the detail and history of the projects in view, to accomplish results. The public has listened to great volumes of oratory and read bales of literature upon the great things to be done for Jersey City. Its patience is exhausted. Something more tangible than promises will be necessary to satisfy the people.

Authority for the creation of such a Commission, or the continuation of the Board, will be found, your Board believes, in the Act of March 30th, 1911, enabling cities of the first class to appoint Commissions for the purpose of city planning.

The Board feels that your Honorable Commission is to be congratulated upon having initiated the greatest step forward in the development of Jersey City made in half a century or more.







MAP OF THE  
**CITY OF JERSEY CITY**  
AND ADJACENT TERRITORY  
ACCOMPANYING REPORT OF THE  
**BOARD OF ENGINEERS**  
**JERSEY CITY DEVELOPMENT PLAN**  
1920

Scale  
0 1000 2000 3000 4000 5000

*Philip Jones* *John H. Jones*  
*Albert J. G. G. G.* *John H. Jones*  
*James H. Jones* *John H. Jones*  
*Hugh A. Kelly* *John H. Jones*









CITY OF JERSEY CITY

# BOARD OF ENGINEERS

1920

Scale





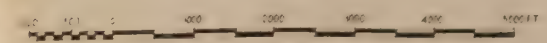




MAP OF THE  
**CITY OF JERSEY CITY**  
ACCOMPANYING REPORT OF THE  
**BOARD OF ENGINEERS**  
JERSEY CITY DEVELOPMENT PLAN

1920

Scale



PROPOSED STREET CHANGES



LEGEND

HEAVY BLACK LINES INDICATE SUGGESTED IMPROVEMENTS.  
THUS;









MAP OF THE  
**CITY OF JERSEY CITY**

ACCOMPANYING REPORT OF THE  
**BOARD OF ENGINEERS**  
JERSEY CITY DEVELOPMENT PLAN

1920

Scale



**PRESENT & PROPOSED PARKS & PLAYGROUNDS.**











DATE DUE

H352.7 J483J cop. 2

Board of City Com. of  
Jersey City

Jersey City Develop-  
ment plan

~~1/20 Mark DeLanda 319~~  
~~still running~~

~~1/24~~  
~~5/13 Barbara Drag 414~~

H352.7 cop. 2

Board of City  
Commissioners of  
Jersey City

Jersey City Development  
plan



